

DISTRICT COURT, WATER DIVISION NO. 3
COLORADO

Alamosa County Courthouse
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Alamosa, CO 81101
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**IN THE MATTER OF THE RIO GRANDE WATER
CONSERVATION DISTRICT,
IN ALAMOSA COUNTY, COLORADO**

AND

**CONCERNING THE OFFICE OF THE STATE
ENGINEER'S APPROVAL OF THE PLAN OF
WATER MANAGEMENT FOR SPECIAL
IMPROVEMENT DISTRICT NO. 1 OF THE RIO
GRANDE WATER CONSERVATION DISTRICT**

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Case Number: **06CV64 &
07CW52**

FINDINGS OF FACT, CONCLUSIONS OF LAW, JUDGMENT AND DECREE

TABLE OF CONTENTS

I. PROCEDURAL HISTORY..... 1

 A. The February 2009 Order Approved, in Part, and Remanded the Original Plan of Water Management to the District for Amendment. 2

 B. Subdistrict’s Deliberations and Adoption of the Amended Plan 3

 C. Pretrial and Trial Proceedings in Case Nos. 06CV64 and 07CW52..... 5

II. THE AMENDED PLAN OF WATER MANAGEMENT 8

 A. Suggestions by the Court’s February 2009 Order Concerning an Amended Plan. 8

 B. Changes Adopted in the Amended Plan 13

 C. Appendix 1 of the Amended Plan Contains a Comprehensive Procedure for the Submission and Approval of Annual Replacement Plans to Prevent Injury to Senior Surface Water Rights..... 20

 D. Appendix 2 Describes the Methods the Subdistrict will Utilize to Calculate Surface Water Credits as Defined by the Amended Plan. 22

 E. Appendix 3: Inventory of Subdistrict Wells 23

 F. Appendix 4: The Process and Procedure that the Subdistrict and District will use in Preparing Budgets and Accounting for Expenses in Implementation of the Amended Plan..... 25

 G. Appendix 5: the Subdistrict’s Operational Timeline 25

III. MIXED FINDINGS OF FACT AND CONCLUSIONS OF LAW REGARDING CHALLENGES TO THE AMENDED PLAN..... 25

 A. The Administrative Record is a Complete and Sufficient Record for Changes Incorporated into the Amended Plan. 27

 B. The Phase 5 RGDSS Groundwater Model is the Appropriate Tool for Use in Determining Stream Depletions from the Operation of Subdistrict Wells. 27

 C. Sufficiency of Amended Plan – Methodology for Calculation and Replacement of Injurious Depletions..... 30

 1. Conjunctive Use of Surface and Groundwater 31

a.	Historical Irrigation Practices	31
2.	Determination of Groundwater Consumptive Use for Purposes of Calculation of Stream Depletions by Subdistrict Wells.	36
a.	Recharge Decrees in Cases No. W-3979, W-3980, 96CW45 and 96CW46.	36
3.	Rio Grande Water Users Association’s Winter Recharge Decree, Case No. 79CW91	39
4.	Quantification of Fully Consumable Water under the Recharge Decrees and Winter Recharge Decree	40
5.	Use of Fully Consumable Water in Determining Stream Depletions.....	44
6.	Calculation of Stream Depletions by Subdistrict Wells Using Response Functions for Annual Plan of Operation.....	46
a.	Derivation of Response Functions	46
7.	Stream Depletions from Subdistrict Wells Predicted by Use of Response Functions.....	53
D.	Use of Recharge Decrees in the Calculation of Net Consumptive Use of Groundwater in the Amended Plan.....	57
E.	The Court Will Require Replacement of Depletions from Past Pumping of Subdistrict Wells that have yet to Accrue to the Stream System as a Term and Condition of Approval of the Amended Plan	60
1.	Senior Surface Owners are Suffering Current Injury Due to Lagged Depletions from Prior Pumping	61
2.	The Practical Difference Between the Supporters’ and the Objectors’ Plans for Replacement	65
3.	The Constitution and the 1969 Act Make Clear that Water in Colorado is to be Managed to Serve Two Goals: Protecting Prior Appropriations and Maximizing Beneficial Use.	69
4.	Integration of Surface Streams and Groundwater in Division 3 is Very Difficult in Practice.....	73

5.	SB 04-222 Takes the Next Step to Allow New Flexibility and Encourage Best Efforts to Integrate Surface Streams and Groundwater While Protecting the Rights of Senior Water Users.	74
6.	<i>Well Augmentation Subdistrict of the Central Water Conservancy District and South Platte Well Users Association v. City of Aurora</i> and Ongoing Depletions from Past Pumping	77
7.	Plans of Water Management Intended to Deal with Ongoing Depletions from Past Pumping are Subject to a Similar Analysis as in WAS.	79
8.	Weighing and Applying the Competing Goals of the 1969 Act.....	85
F.	The Subdistrict Must Replace Injurious Depletions to Senior Surface Water Rights Resulting from Subdistrict Well Pumping, not Replace the Reduction in Evapotranspiration by Phreatophytes.	89
G.	The Fact that the Subdistrict has not Identified Sources of Replacement Water is not a Bar to the Court’s Approval of the Amended Plan.....	96
H.	Challenges to the Subdistrict’s Contract Authority	100
I.	Challenges to the Use of Closed Basin Project Water as a Potential Source of Replacement Water.....	102
J.	The Amended Plan’s Change in Timing for Removing Land from Irrigation to Effectuate Further Recovery of the Unconfined Aquifer to a Sustainable Condition is Lawful.	104
K.	The Amended Plan Does Not Need to Include Terms And Conditions Regarding Management of the Confined Aquifer.	105
L.	Appendix 2’s Calculation of Surface Water Credit is Reasonable and Supported by the Record.	109
M.	Appendix 3 Adequately Sets Forth the Methodology to Inventory and Describe Subdistrict Wells and to Update the Database Based on Each Year’s Annual Replacement Plan.....	112
N.	Appendix 4 Adequately Describes the Subdistrict’s Budgeting and Accounting Procedures and Provides Opportunity for Public Involvement.	113
O.	The Subdistrict May Assess a Fee for the Collection of Well Metering Data Pursuant to the Terms of Appendix 5.	114
P.	Effect of Non-Compliance with Amended Plan	115

Q.	Retained Jurisdiction under Section 37-92-501(4)(c) and Section 37-48-124(2)119	
R.	Procedural Protections, Notice and Timeframes	123
IV.	ADEQUACY OF THE AMENDED PLAN UNDER SECTIONS 37-48-126(2) AND 37-92-501(4).....	125
V.	THE STATE ENGINEER’S APPROVAL OF THE AMENDED PLAN FAILS TO CONFORM WITH THE LAW AFTER WAS	128
VI.	THE COURT APPROVES THE AMENDED PLAN WITH TERMS AND CONDITIONS	130
VII.	DECREE.....	133

I. PROCEDURAL HISTORY

1. This matter concerns objections to an amended plan of water management (“Amended Plan”) prepared and adopted by the board of managers of Special Improvement District No. 1 of the Rio Grande Water Conservation District (the “Subdistrict”) in accordance with section 37-48-126(1), C.R.S. (2009), following referral back to the board of managers and the board of directors of the Rio Grande Water Conservation District (“District”) by this Court in accordance with section 37-48-126(3)(b), C.R.S. (2009). This matter involves two separate but related cases. Case No. 06CV64 involves objections to the Amended Plan as the official plan of the Subdistrict approved by the District board of directors pursuant to section 37-48-126(2), C.R.S. (2009). Case No. 07CW52 involves objections to the State Engineer’s approval of the Amended Plan as a groundwater management plan pursuant to section 37-92-501(4)(c), C.R.S. (2009).

2. The first trial in these consolidated cases took place from October 27, 2008, to November 4, 2008, and is the subject of this Court’s *Findings of Fact, Conclusions of Law and Order* dated February 18, 2009 (“February 2009 Order”). The February 2009 Order is briefly summarized below in paragraphs 7-8. This Court approved some aspects of the Original Plan but remanded the matter to the Subdistrict for amendment. The Court specified certain changes it wished to see. This order must be read in conjunction with the February 2009 Order.

3. Following the submission to the Court of the Amended Plan of Water Management, the Court entered a *Modified Case Management Order Governing Proceedings in Advance of September 28, 2009 Trial* (“Modified Case Management Order”) (June 22, 2009). The order provided that parties participating in the first trial would remain parties. The Court further ordered that any objections to the District’s approval of the Amended Plan be filed within the time set forth in section 37-48-126(3)(b) and that any person or entity filing a motion to intervene in Case No. 07CW52 on or before July 31, 2009, would be allowed to intervene.

4. In the *Modified Case Management Order* governing the second trial, the parties agreed that the District would provide an update to the Administrative Record in Case No. 06CV64 encompassing the time from the Court’s February Order to the date that the Amended Plan was adopted by the District board of directors. The District provided the update to the Administrative Record to all parties, and its contents are marked with 2009 AR numbers.

5. The Court considers the 2009 Administrative Record in conjunction with the applicable portions of the Administrative Record from the first trial. The Administrative Record from the first trial is marked with AR numbers. The 2008 and 2009 Administrative Record constitutes the entire record for review in Case No. 06CV64.

6. In this order, the Court refers to the parties who appeared in support of the Amended Plan and the State Engineer's approval of that Amended Plan; namely, the Rio Grande Water Conservation District; the Rio Grande Water Users Association; the Conejos Water Conservancy District; State and Division Engineers; Farming Technology Corporation; Mountain Coast Enterprises, LLC; Ernest, Freda, Virginia and Warren Myers; Nevitt Farms; Sam Investments, Inc.; the Estate of Francis McCormick; Skyview Cooling Company, Inc., and Wijaya Colorado, LLC, as the "Supporters." When necessary, the Court refers to Mountain Coast Enterprises, LLC; Ernest, Freda, Virginia and Warren Myers; Nevitt Farms; Sam Investments, Inc.; the Estate of Francis McCormick; Skyview Cooling Company, Inc., and Wijaya Colorado, LLC, as the "Skyview Parties." The Objectors represented by Mr. Timothy Buchanan are referred to as the "Acequia Objectors"; and Objectors Richard Ramstetter and Peter Atkins represented by Stéphane W. Atencio, the Costilla Ditch Company represented by Erich Schwiesow, and Perry Alspaugh, *pro se*, are referred to by their names.

A. The February 2009 Order Approved, in Part, and Remanded the Original Plan of Water Management to the District for Amendment.

7. The first trial considered the Plan of Water Management (the "Original Plan") adopted by the Subdistrict board of managers and the board of directors of the District, and approved by the State Engineer in 2008. In its February Order, the Court described the formation of Subdistrict No. 1, the appointment of an eleven-member board of managers to govern the Subdistrict, and the efforts that the board of managers undertook in preparing the Original Plan. February 2009 Order, ¶¶ 20, 21, 23 - 33.

8. The February 2009 Order approved portions of the Original Plan, referred the Original Plan back to the board of managers of the Subdistrict and the board of directors of the District for further consideration and amendment in light of the February Order, and specifically held certain issues in abeyance pending the Subdistrict's preparation and submission of an Amended Plan. The February 2009 Order held in part:

17. The Court specifically finds the current Plan is conceptually compatible with SB 04-222 and the constitutional principles governing Colorado water law, but the Court also concludes that this Plan should be referred back to the board of managers of the Subdistrict and the board of directors of the District for further consideration and amendment because it lacks detail, grants discretion with no guidance, fails to acknowledge the replacement of injurious depletions as a priority, and simply is not a "comprehensive and detailed plan" §37-48-126(2), C.R.S. As the Court is referring the Plan back, the majority of the issues in 07CW52 are held in abeyance for further proceedings in light of the amendment. It would be premature to address the issues raised in 07CW52 except to the extent the objections would preclude any plan at all for this Subdistrict because, if those objections were valid, it would make remand of the Plan pointless. For

example, it would make little sense to remand the Plan if, in the context of the review of the State Engineer's approval, the Court were persuaded that the entire Plan failed because it did not completely address and satisfy the requirements of sections 37-92-501(4)(a) and (b). Therefore, the Court will address this and similar objections in this ruling.

18. The Court concludes that an Amended Plan should include: (1) the timeframe and the methodology to be used to determine the depletions "calculated" to occur to the Rio Grande and its tributaries resulting from the operation of Subdistrict Wells; (2) a procedural timeframe for disclosure of the methodology for replacement of the depletions to the Rio Grande and its tributaries resulting from the operation of Subdistrict Wells; (3) a timeframe for annual review and calculations regarding the past irrigation season and procedures for addressing under- or over-delivery; (4) a "template" for the annual operating plan which should contain the specific information concerning the operation of the plan in a coming year; and (5) provisions for review of the operation of the plan at the end of the year.

February Order, at ¶¶ 17, 18. The February 2009 Order further directed that:

The Subdistrict shall have 120 days from the date of this order within which to prepare and adopt an Amended Plan. Upon completion of an Amended Plan, it shall be resubmitted to the State Engineer and if approved by the State Engineer and the board of directors of the RGWCD as provided for in section 37-48-126(3), the Amended Plan shall be filed with the Court and served on the Parties.

February 2009 Order, p. 73.

B. Subdistrict's Deliberations and Adoption of the Amended Plan

9. Upon receiving the February 2009 Order, the board of managers met to consider the Court's February 2009 Order and to develop amendments to the Subdistrict's plan for water management. The board of managers developed and then reviewed the Amended Plan over the course of five publicly noticed meetings. See 2009 AR-1 – 6; 2009 AR-46 – 49; 2009 AR-52 – 55. Each of these meetings was open to the public and at each meeting the public was given an opportunity to comment. *Testimony of Steve Vandiver* (Sept. 28, 2009); *Testimony of Carla Worley* (Sept. 29, 2009); see also 2009 AR-1 – 5.

10. Section 37-48-108 authorizes the District to form subdistricts under the provisions of sections 37-48-123 through 37-48-193. A subdistrict is governed by its official plan that is:

a *comprehensive detailed* plan, setting forth any plan of water management for the subdistrict, *any improvement or works*, including all

canals, reservoirs, and ditches whether within or without the district to be constructed or used for the subdistrict, *and the manner of utilization of the same in any plan of augmentation or plan of water management*, together with the estimated costs of each principal part of said plan or plans, system, or works and the estimated cost of maintenance and operation thereof.

§ 37-48-126(1) (emphasis added).

11. Subdistricts may adopt and implement plans of water management. § 37-48-126, C.R.S. (2009). Section 37-48-108(4) defines a plan of water management as:

a cooperative plan for the utilization of water and water diversion, storage, and use facilities in any lawful manner, so as to assure the protection of existing water rights and promote the optimum and sustainable beneficial use of the water resources available for use within the district or a subdistrict, and may include development and implementation of plans of augmentation and exchanges of water and ground water management plans under section 37-92-501(4)(c).

12. On May 8, 2009, the board of managers unanimously approved the Amended Plan for the Subdistrict and forwarded the Amended Plan to the State Engineer for his consideration and approval. See 2009 AR-49; 2009 AR-22. There is a single “Amended Plan” before the Court which is clearly both a plan of water management and the official plan of the Subdistrict.

13. By letter dated May 14, 2009, the State Engineer, Dick Wolfe, approved the Amended Plan as a groundwater management plan that meets the requirements of section 37-92-501(4)(a) and (b). See 2009 AR-23. Notice of the State Engineer's approval was published in the May 2009 Resume for Water Division No. 3. See Exhibit 64.

14. In compliance with section 37-48-126(3)(a), the District then gave notice of a public hearing on all objections to the Amended Plan to be held on June 15, 2009. Notice of the time and location of the hearing was published in Saguache, Mineral, Conejos, Rio Grande, and Alamosa Counties in accordance with section 37-48-126(3)(a). The published notice also stated that the Amended Plan was available for review at the office of the District, that all objections needed to be written and filed with the District before the hearing, and described the procedures for oral comments at the hearing. See 2009 AR-57 – 62; § 37-48-126(3)(a).

15. The District did not receive any written objections to the Amended Plan. *Testimony of Steve Vandiver* (Sept. 28, 2009).

16. The District held a public hearing on June 15, 2009. The hearing was transcribed by a certified court reporter, and the transcript is included in the 2009 Administrative Record. See 2009 AR-76. Based on the Court's review of this transcript, the Court finds that all individuals who wished to object or otherwise comment on the Amended Plan were given a fair opportunity to do so. *Id.*

17. At the conclusion of the June 15, 2009 hearing, and after consulting with the board of managers, the District board of directors adopted the Amended Plan as the official plan of the Subdistrict pursuant to section 37-48-126(3)(a). See 2009 AR-51. Notice of the adoption of the Amended Plan was filed with the Court and the parties to this litigation.

C. Pretrial and Trial Proceedings in Case Nos. 06CV64 and 07CW52

18. Section 37-48-126(3)(b) provides that if a plan of water management is adopted by the District board of directors following a public hearing, persons who object to the plan may file objections to the plan within ten days following the adoption of the plan in the case creating the Subdistrict, specifically Case No. 06CV64.

19. In Case No. 06CV64, the following additional parties timely filed objections to the District board of directors' adoption of the Amended Plan in accordance with section 37-48-126(3)(b): Richard Ramstetter and Peter Atkins, represented by Stéphane W. Atencio, and the San Antonio, Los Pinos and Conejos River Acequia Preservation Association, Save Our Senior Surface Water Rights, LLC, and V.W. Ellithorpe represented by Timothy R. Buchanan, of Buchanan & Sperling, P.C. None of these parties exercised their right to file objections to the Amended Plan at the District's hearing on the Amended Plan.

20. Section 37-92-501 provides that the State Engineer "shall publish notice of the approval of any ground water management plan in the same manner as provided for rules." § 37-92-501(4)(c) C.R.S. (2009). Notice of the State Engineer's approval of the Amended Plan was published in the water resume of applications filed during the month of May 2009 for Water Division 3.

21. In Case No. 07CW52, the following additional parties filed timely objections to the State Engineer's approval of the groundwater management plan included in the Amended Plan: the San Antonio, Los Pinos and Conejos River Acequia Preservation Association, Save Our Senior Surface Water Rights, LLC, Laurie McClung, Janis N. Slade, Norman W. Slade, Mario Bassi, Robert Adkins, Obbie Dickey, and V.W. Ellithorpe, represented by Timothy R. Buchanan, and Peter Atkins, represented by Stephane Atencio.

22. Farming Technology Corporation and the Skyview Parties filed statements in both cases reflecting their changed position from objectors to the Original Plan to supporters of the Amended Plan.

23. The Court, sitting as the District Judge in Case No. 06CV64, has jurisdiction to hear objections to the District's adoption of a plan of water management as the official plan of a subdistrict. § 37-48-126(3)(b), C.R.S. (2009). The Court may "adopt, reject, or refer back the plan to the board of directors." *Id.* "If the court should refer the plan back to the board for amendment, the court shall continue the hearing to a day certain without publication of notice. If the court approves the plan as the official plan of the district, a certified copy of the order of the court approving the plan shall be filed with the secretary of the district and incorporated into the records of the district." § 37-48-126(4), C.R.S. (2009).

24. Any party who objects to the State Engineer's approval of a groundwater management plan may do so in the same manner as provided for in section 37-92-304 for the protest of a ruling of a referee. §§ 37-92-501(4)(c) and 37-92-501(3)(a), C.R.S. (2009). Sitting as the Water Judge for Water Division 3, this Court is designated to hear and dispose of all protests as promptly as possible. *Id.* The water judge is directed to retain jurisdiction over the water management plan for the purpose of ensuring the plan is operated, and injury is prevented, in conformity with the terms of the court's decree approving the water management plan. *Id.*

25. Based upon the District's unopposed motion to consolidate the hearing on objections in both cases in accordance with section 37-48-126(3)(b), and on the basis of judicial economy, the Court consolidated for trial, but did not merge, the two cases. See *Order Granting Unopposed Motion to Consolidate 06CV64 and 07CW52 for Joint Hearing* (December 18, 2007).

26. The Court ordered that the doctrine of law of the case would apply to the continuation of the trial as to any matters that were previously determined by the Court's February Order and that are not the subject of substantive amendment in the Amended Plan. See *Modified Case Management Order* at ¶ 10.a. For Case No. 06CV64, "law of the case" means that persons seeking to object to any amendments to the Amended Plan may only challenge amendments made to the plan after the October 2008 trial and will be bound for purposes of the second phase of trial by the rulings contained in the Court's February Order. *Id.* at ¶ 10.b. For Case No. 07CW52, "law of the case" means that persons filing protests to the State Engineer's approval of the Amended Plan may only challenge his approval with respect to matters not determined by the February Order and will be bound for purposes of the second trial by the February Order as to issues determined therein. *Id.* at ¶ 10.c.

27. Prior to the October 2008 trial, various parties filed motions for summary judgment, and Mr. Alspaugh filed a motion to remand. See *Constitutional Motion*, (July 23, 2008), by Perry Alspaugh in Case No. 07CW52; *Motion for Summary Judgment and Brief in Support of Motion for Summary Judgment*, (July 25, 2008) by Timothy Buchanan, on behalf of his then clients in both Case No. 07CW52 and Case No. 06CV64; *Pre-Trial Motion for Remand*, (September 5, 2008) by Perry Alspaugh in Case No. 07CW52. The Court denied the motion for summary judgment and the motion for remand and deferred ruling on the Constitutional Motion until after trial. See *Order*

Denying Motion for Summary Judgment, Motion to Remand, and Deferring Ruling on Alspaugh Constitutional Challenge, (October 14, 2008).

28. Prior to the second phase of the trial, the Acequia Objectors filed five motions for determination of a question of law pursuant to C.R.C.P. 56(h). The Supporters filed responses to each of the five motions, and the Acequia Objectors filed replies in support of each motion. The five motions were (1) *Motion and Brief in Support for Determination of Question of Law Re Subdistrict's Claim of Authority to Use Water From "Recharge Decrees"*; (2) *Motion and Brief in Support for Determination of Question of Law Regarding the Subdistrict's Claim to Use Water Associated with the Closed Basin Project for Replacement of Well Depletions*; (3) *Motion and Brief in Support for Determination of Question of Law Regarding the Subdistrict Contracting to Provide Services to Wells Not Specifically Described in the Plan of Water Management*; (4) *Motion and Brief in Support for Determination of Question of Law Regarding the Obligation to Replace Ongoing Depletions from Past Pumping of Subdistrict Wells*; (5) *Motion and Brief in Support for Determination of Question of Law Regarding the Failure of the Plan of Water Management to Include Required Terms and Conditions to Prevent Injury to Vested Senior Surface Water Rights*.

29. Perry Alspaugh filed a Response to the Brief in Opposition to the Acequia Objectors' *Motion for Determination of Question of Law Regarding the Subdistrict's Claim to Use Water Associated with the Closed Basin Project for Replacement of Well Depletions*. Mr. Alspaugh also filed a pleading titled *Thoughts to the Court*.

30. The Court denied each of the Acequia Objectors' five motions, ruling that "The Court declines to reach definitive legal conclusions while there remain complex, contested issues of fact and law." See, e.g. *Order Re Acequia Objectors' Motion for Determination of Law Regarding the Subdistrict's Claim to Use Water Associated with the Closed Basin Project for Replacement of Well Depletions* (September 9, 2009). This Judgment and Decree contains the Court's ruling on these issues.

31. The Court held a trial on objections to the Amended Plan and the State Engineer's approval of that plan beginning Monday, September 28, 2009, and continuing for ten full or partial trial days, until the close of evidence on October 9, 2009. At trial, the Supporters presented a joint case in support of the Amended Plan and the State Engineer's approval of the Amended Plan as a groundwater management plan that conformed with the Court's *Order Re Standard of Review, Burden of Proof and Order of Presentation at Trial*. The Objectors then presented evidence opposing the Plan. Counsel requested time to submit proposed orders to the Court. The Court held closing arguments on October 30, 2009.

32. At the 2009 trial, the State Engineer was represented by First Assistant Attorney General Peter J. Ampe and Assistant Attorney General Mari Deminski. The District was represented by David W. Robbins and Ingrid C. Barrier of Hill & Robbins, P.C. The Rio Grande Water Users Association was represented by William A. Paddock of Carlson, Hammond & Paddock, LLC. The Conejos Water Conservancy District was

represented by Richard J. Mehren of Moses, Wittemyer, Harrison & Woodruff, PC. Timothy R. Buchanan, of Buchanan & Sperling, P.C., represented the Acequia Objectors. Stéphane W. Atencio represented objectors Richard Ramstetter and Peter Atkins, and Erich Schwiesow of Lester, Sigmond, Rooney & Schwiesow, P.C., represented the Costilla Ditch Company. Perry Alspaugh attended trial, asked questions of witnesses, and testified on his own behalf. Shortly before trial, William A. Hillhouse II of White & Jankowski, LLP, representing Farming Technology Corporation, filed a notice that Farming Technology would not participate at trial but that it supported the Amended Plan. John C. McClure appeared on behalf of the Skyview Parties to make an opening statement in favor of the Amended Plan and then monitored, but did not otherwise take an active role in the trial.

33. During their case-in-chief, Supporters presented testimony from three lay witnesses and six expert witnesses. The Supporters' lay witnesses were Mr. Steven E. Vandiver, Ms. Carla Worley, and Mr. Douglas L. Shriver. The Supporters' expert witnesses were John Allen Calvert Davey, P.E., Willem A. Schreüder, Ph.D., James Slattery, P.E., Charles M. Brendecke, Ph.D., Michael J. Sullivan, P.E., and Dick Wolfe, P.E. The parties stipulated to the admission of the C.R.C.P. 26(a)(2) Expert Disclosures of Eric J. Harmon, P.E. The Acequia Objectors presented testimony from expert witness Scott Mefford and lay witnesses Kelly Sowards, Norman Slade, and Ed Neilson. Richard Ramstetter testified on his own behalf, and Perry Alspaugh, *pro se*, also testified. The Costilla Ditch Company presented no witnesses.

34. The Administrative Record marked with 2009 AR numbers constitutes the entire record for review in this phase of Case No. 06CV64 and was admitted into evidence in that case. In this phase of Case No. 07CW52, the Court admitted the 2009 Administrative Record, as well as Exhibits 21, 62, 63, 64, 77 (77.1 & 77.2), 78, 79 (79.1 & 79.2), 86, 87, 88, 89 (89.1, 89.2, 89.3 & 89.4), 90, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 107, 108, 109, 110, 111, 112, 114, 115, 116, 117, 118, 119, 120, 121, 122, and 123 and Exhibits S-33, S-34, S-35, S-37, S-38, S-50 (parts. 1 and 2) and S-55. The Court took judicial notice of Case No. 01CW20.

II. THE AMENDED PLAN OF WATER MANAGEMENT

A. Suggestions by the Court's February 2009 Order Concerning an Amended Plan.

35. In its February 2009 Order, the Court made several suggestions to guide the Subdistrict in developing the Amended Plan. The Court stated:

The Court intends the discussions above to give some guidance to the Board and Subdistrict. It should be evident that there are certain procedural steps and substantive content that are essential for any Amended Plan. The Court will now try to set out some additional suggestions. These steps should be viewed as a starting point for internal discussion and frank exchange of ideas with Objectors given the myriad

ways in which their economic interests are tied to one another. The Court suggests:

First, upon receipt of this order, the Court assumes that the board of managers will conduct such additional public meetings as it deems necessary to prepare an amended plan to submit to the Board of Directors of the RGWCD. The Court recognizes that section 37-48-126(4) distinguishes between a plan that has been rejected and one referred back for amendment; and it can be argued that, in the latter case, additional hearings are not required. Even if that is so, the better practice would be to follow the open and transparent process that brought the Plan before this Court the first time. The changes suggested and required are substantive. This is the first effort to apply this important statute and continuation of the process used to date is appropriate.

Second, upon amendment of the Plan, the Court also assumes the Amended Plan will be resubmitted to the State Engineer for approval pursuant to section 37-48-126(2) and in accordance with section 37-92-501(4)(c), C.R.S., prior to its submission to the Board of Directors of the RGWCD for hearing and approval under section 37-48-126(3)(a).

Third, the State Engineer's timeline for adoption of rules and regulations governing existing withdrawals from the Confined and Unconfined Aquifers is not clear. It is likely such rules may be proposed but not finalized by the time this matter is again before the Court. It is also unclear whether the State Engineer will propose rules and regulations relating to the supervision and administration of subdistrict plans. Consequently, in the Amended Plan, the Subdistrict should agree to comply with existing and future rules and regulations in Division No. 3 as they are adopted. To the extent a provision of the Amended Plan is less stringent than the rules, or conflicts with adopted rules and regulations, the Amended Plan should state the Subdistrict will meet the requirements of the rules and regulations.

Fourth, in the event rules and regulations are not adopted by the State Engineer with regard to existing withdrawals from the Unconfined and Confined Aquifers prior to adoption of an Amended Plan, the Subdistrict Amended Plan must include the kind of detail previously outlined, so the Court, the State Engineer and water users will fully understand the process by which the Subdistrict will address injurious depletions each year. The Court has approved the flexibility in the Plan to utilize a variety of remedies for injurious depletions. This is consistent with the legislative directives and the goal of optimizing utilization of the aquifers, but it also means that there must be clear timetables for the disclosures each year and an opportunity for those whose rights are affected to comment and present objections to the board of managers and the State Engineer.

Fifth, the Amended Plan should attach an inventory which identifies the set of all "Subdistrict Wells." The definition for "Subdistrict Wells" in the Plan as submitted does not limit Subdistrict Wells to wells which will be subject to regulation pursuant to rules and regulations. If the intent was to exclude wells exempt from regulation pursuant to section 37-92-602 and non-exempt wells of not more than 50 gpm as described in Rule 1, Rules Governing the Measurement of Ground Water Diversions approved by this Court in 05CW12, the definitions should be clarified. There may be a subset of wells which have augmentation plans, and these wells should be identified. This inventory should include the standard identifications used in the State Engineer's Hydrobase, such as well permit number or State Engineer receipt, adjudication case(s), Aquamap/GPS and legal descriptions of location, depth, aquifer(s) from which it draws, decreed amount, date of priority, use, irrigated acreage, crop patterns, irrigation practices and such other specific identification data as the subdistrict and State Engineer believe appropriate. (See, for example, Arkansas River Use Rule 13). The Court understands that the operating plan for each year will likely identify a subset of the Subdistrict wells which will not be pumped at all in a given year where a well is tied to a parcel involved in the CREP program or is otherwise going to be fallow, where a well has collapsed and a replacement well not be completed, where a well is abandoned, or where a well is not needed due to abundant snowpack and the availability of surface water.

Sixth, the Amended Plan of Water Management must clearly provide a description of the methodology and the timetable to be used for the yearly calculation of injurious depletions to senior surface rights which must be replaced. The Amended Plan should include a detailed description of:

(1) the information the Subdistrict will collect and procedure it will follow each year to calculate estimated injurious depletions to senior surface rights using the RGDSS groundwater model (unless and until it is superseded).

(2) the procedure and timeline the Subdistrict will follow to replace depletions, including a description of the information to be provided to identify the sources of water to be used as replacement supplies, to allow additional or alternative sources of water to be used for this purpose and to evaluate the adequacy of the replacement water supplies for this purpose;

(3) the type of information the Subdistrict will collect and submit to the Division Engineer to demonstrate its actual ability to replace injurious depletions and timeline for doing so;

(4) the types of information the Subdistrict will submit to the Division Engineer to demonstrate that the replacement occurred and that it prevented injurious depletions and the timeline for doing so;

(5) the procedure to be used, including the information to be collected and reported to the Division Engineer, concerning the existence/non-existence and condition of the Hydraulic Divide;

(6) the timeline for disclosure and method of disclosure of what lands will be participating in the CREP program each year;

(7) the timetable for an end-of-the-year report of actual data from the totalizing flow meters detailing the time, location and actual amount pumped and the calculation of actual injurious depletions to senior surface rights caused by the actual pumping as calculated by the RGDSS groundwater model (unless and until it is superseded).

(8) the methodology and timeframe for addressing any lagged injurious depletions as set out in an end-of-year report which will then be remedied in a monthly time step; and

(9) such other information as the Subdistrict believes will be necessary for the Court and the parties to evaluate the adequacy of the procedures to be followed in implementation of the Amended Plan.

Seventh, the Amended Plan should attach or include the “template” for the annual Plan of Operation. At a minimum the template for the annual Plan of Operation should include:

a) The calculations of expected pumping amounts and locations based upon current river and snowpack conditions.

b) Predicted injurious depletions to the Rio Grande and its tributaries as calculated by the RGDSS groundwater model, or by other technology the State Engineer believes to be more accurate (best available technology.)

c) Specific calculations, methodology and means for remedy of the injurious depletions to senior surface rights by tributary and time, location and amount using monthly time steps. (See Rule 14(d) and (f), Arkansas River Use Rules).

d) A process of Review of the proposed annual Plan of Operation by the State Engineer who will approve, disapprove, or approve with conditions the proposed Plan of Operation. (Ideally, the State Engineer will propose rules regarding his involvement, public input and recourse to the Court's retained jurisdiction.)

e) An end-of-the-year report template as required by the Amended Plan of Water Management containing the actual data from the totalizing flow meters detailing the time, location and actual amount pumped. The report shall further set out the calculation of actual injurious depletions to senior surface rights caused by the actual pumping as calculated by the best available technology, presumably the RGDSS groundwater model. Any lagged injurious depletions will then be remedied in monthly time steps. The report should also document the current state of the Hydraulic Divide, and the state of the Unconfined Aquifer and Confined Aquifers.

f) Such other information as the Subdistrict, District or State Engineer believes will be useful for annual and cumulative evaluation of the success of the Amended Plan including success in replacing injurious depletions.

36. The February 2009 Order described the goals and objectives of the Subdistrict's Groundwater Management Plan, and held "The requirement of complete replacement of injurious depletions to senior surface water rights is a prerequisite for court approval and continued viability of any plan of water management that seeks the benefits of exemption from regulation, and the Plan fails to recognize this obligation in unambiguous terms." February 2009 Order, at ¶ 188.

37. The overall management goals and objectives of the Amended Plan remain consistent with the Original Plan, but the content of the Amended Plan demonstrates that the board of managers recognized the Court's requirement that the Amended Plan unequivocally place a priority and emphasis on calculating and replacing injurious depletions to surface streams that result from Subdistrict well pumping. *Testimony of Steve Vandiver* (Sept. 28, 2009). In drafting the Amended Plan, the board of managers made a significant shift in emphasis, as explained by Allen Davey, the District and Subdistrict's consulting engineer:

The original plan was developed on the concept that if the Subdistrict was successful in improving or raising the groundwater levels throughout the Subdistrict, that they would, in effect, significantly reduce the depletions to the river as a result of reducing the gradient from the river to the Subdistrict. That was the primary focus was to recover the aquifer at that time. The new focus in response to the Court's direction was to place a

first priority on replacement of depletions to the river and then recover the aquifer as a secondary goal, which is very important to the Subdistrict because they need a stable aquifer that they can depend on for their irrigation.

Testimony of Allen Davey (Sept. 29, 2009).

38. The question of what constitutes “complete replacement” remains a disputed issue to be resolved by this Court, but the Amended Plan does address replacement of injurious depletions as the first requirement of a plan of water management.

B. Changes Adopted in the Amended Plan

39. The Amended Plan consists of the body of the Amended Plan and five appendices specifically incorporated into the Amended Plan. *See Amended Plan*, at § III.D.9. (“The methodology and procedure for making the annual accounting described above, including the methodology to calculate injurious depletions to surface water rights and their replacement is fully set forth in Appendices 1 – 5, attached hereto and incorporated hereby.”)

40. The Subdistrict’s board of managers minimized changes to the text of the Original Plan itself and instead chose to address the requirements set out by the Court by incorporating most of the changes and operational details of the Amended Plan in separate appendices to the Amended Plan. *Testimony of Steve Vandiver* (Sept. 28, 2009); *Testimony of Allen Davey* (Sept. 29, 2009). The changes made to the text of the Original Plan in the development of the Amended Plan are reflected in the 2009 Administrative Record. *See* 2009 AR-28 – 34. The Court will address the changes to the Amended Plan in the order in which they appear in the Amended Plan. The changes made to the text of the Original Plan are best shown by Exhibit 63.

41. First, the Amended Plan clarifies its previous definition of Subdistrict Wells as follows:

“Subdistrict Wells” – wells and irrigation systems used by each Subdistrict landowner or any other wells included under this Plan by contract as described in Section II.C. Wells included in the Plan and qualified to receive the benefits afforded by the Plan are those wells subject to the Well Measurement Rules adopted by the State Engineer and approved by the Division 3 Water Court in Case No. 05CW12 (August 1, 2006) (“Measurement Rules”). Wells exempt from the Well Measurement Rules include wells not exceeding fifty (50) gallons per minute which were in production as of May 22, 1971 that were and are used for ordinary household purposes for not more than three single-family dwellings, fire protection, the watering of poultry, domestic animals, and livestock on

farms and ranches and for the irrigation of not over one acre of gardens and lawns. See section 37-92-602(1)(e).

Amended Plan, at § I.C (changes underlined). The expanded definition of Subdistrict Wells provides the clarification that the Court required in its February 2009 Order and eliminates the concern that the definition of Subdistrict Wells included in the Original Plan may be overbroad in that it might include wells exempt from regulation. February Order, at ¶ 88. The language of the Amended Plan is clear that a Subdistrict Well is subject to the Well Measurement Rules promulgated by the State Engineer, and that exempt wells are not included by the Subdistrict's Amended Plan. *Testimony of Carla Worley* (Sept. 29, 2009).

42. If the Well Measurement Rules change to include wells that are currently exempt pursuant to statute or currently not included in the Well Measurement Rules, that could effect a change within the Subdistrict; and those wells may be included as Subdistrict Wells in the future. *See id.* The text of the Amended Plan states: "The Subdistrict agrees to comply with applicable rules and regulations promulgated by the State Engineer as they are adopted. To the extent that a provision of this Plan of Water Management is less stringent than applicable rules and regulations or conflicts with adopted rules and regulations, the Subdistrict will comply with the applicable requirements of the properly promulgated rules and regulations." Amended Plan, at § IV.K.

43. Next, the Amended Plan adopts the term "Surface Water Credit" to eliminate the confusion created by the phrase Recharge Credit utilized in the Original Plan. *See* Amended Plan, at § I.L. As Ms. Worley explained, the Surface Water Credit calculation is utilized to determine each Farm or Farm Unit's Variable Fee. It has no relationship to any recharge decrees adjudicated by the Division 3 Water Court. Ms. Worley testified that the board of managers made this change to distinguish the Surface Water Credit as it pertains to the calculations of the Variable Fee from the Recharge Decrees entered by the Division 3 Water Court. *Testimony of Carla Worley* (Sept. 29, 2009). The Amended Plan also clarifies that the Surface Water Credit can only be given for water physically brought into the Subdistrict and necessarily excludes water from structures that recapture or redirect surface water within the Subdistrict. Ms. Worley explained that no Surface Water Credit would be allowed for water not adding to the water supply in the Subdistrict.

44. In addition, in Section II.C the Amended Plan clarifies the Subdistrict's contract authority by authorizing the Subdistrict to contract with well owners to the extent permitted by law, either within or outside of the boundaries of the Subdistrict, at the discretion of the board of managers. The testimony established that there are municipalities, commercial and industrial well-owners and school districts that may be interested in contracting with the Subdistrict to replace their stream depletions. While the language in the Amended Plan does not expressly contain a limitation, according to the testimony only wells whose injurious stream depletions can be correctly quantified with the Subdistrict response functions may contract with the Subdistrict. The Subdistrict

plans to develop, but has not yet developed, rules to govern such contracts with other well owners. *Testimony of Steve Vandiver* (Sept. 28, 2009). One of the Objectors concerns is that wells which are not included in the Subdistrict may obtain the benefits of such inclusion by contract.

45. The Amended Plan states that it will comply with the applicable requirements of SB-04-222, codified at section 37-92-501(4), C.R.S. (2009). The board of managers recognized that it is the State Engineer's responsibility to ensure compliance with the provisions of section 37-92-501(4). This is consistent with the Court's conclusion in its February 2009 Order that a plan of water management need not:

fully satisfy the principles set out in C.R.S. § 37-92-501(4)(a) and (b). To begin with, these sections specify what the State Engineer must do and the principles he/she must apply. The fact that the State Engineer has not adopted rules which establish criteria for the beginning and end of the irrigation season in Water Division 3 is not a basis to reject this Plan, and it is not appropriate for the Subdistrict to address this or similar duties of the State Engineer. The Plan must "meet the requirements" of the statutes.

February 2009 Order, ¶ 132. The Subdistrict's addition of the word "applicable" merely recognizes the more limited scope of the Subdistrict's authority. See *Testimony of Steve Vandiver* (Sept. 28, 2009).

46. The text of section II.F. of the Amended Plan is new, and provides that the "Subdistrict will replace injurious depletions that result from Subdistrict Well pumping that occurs on or after January 1 of the year following final judicial approval of the Plan." See *Testimony of Carla Worley* (Sept. 29, 2009); 2009 AR-76. Objectors strenuously object to this aspect of the Amended Plan and claim that current and future depletions from previous pumping must be replaced as well. This issue is the subject of a *Motion for Determination of Law* filed by the Acequia Objectors. Whether ongoing injurious stream depletions caused by well pumping before approval of the Amended Plan must be replaced is a question of law for the Court and is addressed later in this ruling.

47. Section III.C. of the Amended Plan clarifies the Subdistrict's commitment to use the RGDSS groundwater model to calculate injurious depletions that this Subdistrict must replace, unless and until the model is supplanted in the future by superior technology. This amendment conforms with the Court's direction in its February 2009 Order. See February 2009 Order, ¶ 201.

48. The Amended Plan further clarifies that the Subdistrict will continue its efforts to restore and maintain the historical Hydraulic Divide, but that injurious depletions resulting from Subdistrict Well pumping will be replaced regardless of the state of the Hydraulic Divide. The February 2009 Order examined the Subdistrict's study of the Hydraulic Divide and its relationship to the operation of the Subdistrict's Original

Plan. See February Order, at ¶¶ 62 – 74. The February 2009 Order recognized that the Original Plan’s emphasis on maintaining the Hydraulic Divide “is based upon the premise that when or if the Hydraulic Divide is north of the river between Del Norte and Alamosa it reduces the injurious depletions to senior surface rights because it reduces leakage from the Rio Grande into the Closed Basin.” *Id.*, at ¶ 71. The Court acknowledged that the Subdistrict had authority to “make judgments about how best to manage their water in accordance with the governing principles of Colorado water law” but cautioned that utilizing Subdistrict resources to maintain a Hydraulic Divide “may or may not prove to be a wise use” of Subdistrict resources. *Id.* at ¶¶ 72, 74. The Court concluded that efforts outlined in the Original Plan to maintain the Hydraulic Divide were not contrary to law or inconsistent with the overall purposes of SB 04-222, so long as the Subdistrict prioritizes the replacement of injurious depletions regardless of the state of the Hydraulic Divide. *Id.* at ¶ 74.

49. The Amended Plan provides that the Subdistrict may “Purchase or obtain existing surface water rights and/or storage rights to be used as replacement water for any injurious depletions to surface water rights resulting from pumping of the Subdistrict Wells.” Amended Plan, § III.C.6. Obtaining replacement water to remedy injurious depletions resulting from Subdistrict Well pumping is now a clearly defined priority, separate from the Subdistrict’s efforts to “attempt to restore and maintain the Hydraulic Divide.” The evidence at trial showed that the board of managers elected to continue to develop data regarding the existence and role of the Hydraulic Divide on the Closed Basin and the hydrology of the San Luis Valley as a whole but not to rely upon it as the primary means to prevent depletions to surface streams from Subdistrict Well pumping. See *Testimony of Allen Davey* (Sept. 29, 2009); *Testimony of Carla Worley* (Sept. 29, 2009). This shift in focus and emphasis comports with the Court’s direction in its February 2009 Order. See February 2009 Order at ¶ 74.

50. The Amended Plan anticipates that the Subdistrict may have to purchase or obtain surface water rights and/or storage rights to be used as replacement water for any injurious depletions to surface water rights resulting from the pumping of Subdistrict Wells. Amended Plan, § III.C.6. Although the Subdistrict does not yet have any replacement water available for its use, the Subdistrict has initiated efforts to gauge the availability of replacement water through a meeting with the major surface water right owners within the Subdistrict. *Testimony of Steve Vandiver*, (Sept. 28, 2009); see also 2009 AR-2, 21, 44. The testimony demonstrated that the Subdistrict acknowledges and accepts its responsibility to identify and secure replacement water to remedy injurious stream depletions and to include the source, availability and amount of such water in the annual replacement plan submitted to the State and Division Engineers. *Testimony of Steve Vandiver* (Sept. 28, 2009; Sept. 29, 2009).

51. The fact that the Subdistrict has not yet identified the sources of replacement water it will utilize is not a bar to the approval of the Amended Plan. As the Court held in its February 2009 Order:

208. Administration of the Plan will change on an annual basis depending upon the hydrologic conditions and the amount of injurious depletions calculated to occur to surface water streams as the result of Subdistrict well pumping. Transcript (Sullivan) November 3, 2008. The Plan's operation must be calibrated annually to reflect actual operating conditions. The Court recognizes that the Subdistrict is not currently able to identify the specific sources of replacement water that will be used to replace injurious depletions in varying conditions. The Court does not believe this is an insurmountable obstacle to approval of the Plan and this lack of information will not, in and of itself, render an Amended Plan void for vagueness. In construing a statute, the Court must presume that the General Assembly intended a result that is feasible of execution. Section 2-4-201(1)(d), C.R.S. Thus, the Court should not construe the statutes to require the Subdistrict to identify the precise water supplies to be used to replace injurious depletions because such a requirement would make it impossible to obtain approval of almost any plan of water management, defeating the legislative purpose of SB 04-222.

209. The Objectors argue that nothing short of the level of detail contained in a judicially decreed plan for augmentation is sufficient to comply with Colorado law and the Colorado Constitution. The definition of a plan of water management in section 37-92-501(4)(c) clearly distinguishes the two and provides a plan of water management may include a plan of augmentation but they are not the same. The Court notes that even augmentation plans "may provide procedures to allow additional or alternative sources of replacement water, including water leased on a yearly or less frequent basis, to be used in the plan after the initial decree is entered if the use of said additional or alternative sources is part of a substitute water supply plan approved pursuant to section 37-92-308 or if such sources are decreed for such use." § 37-92-305(8), C.R.S. Thus, knowing with precision the source of replacement water to be used from year to year is not a bar to approval of an augmentation plan, and by analogy, not a bar to approval of a plan for water management that includes replacement of injurious stream depletions. Rather, what is required is a means to ensure that the water supply that is to be used may be lawfully used for that purpose and will, in fact, prevent injury and replace out-of-priority diversions in time, location and amount.

210. As already noted, any Amended Plan should detail the methodology and timetables of the Amended Plan's proposed operation and include a detailed outline of the content of an operating plan. Over time, the source of replacement water for particular depletions may change, which would change the operating plan for a given year, yet such change would be made within the methodology and procedural timetable of the plan itself. For example, the Subdistrict may well conclude at some point that a plan of augmentation is the best way to address a particular circumstance on a

tributary, but that leases and utilization of water owned by the major ditches in the Subdistrict give more flexibility for the circumstances on the mainstem Rio Grande. The Court approves this kind of flexibility so long as it is tied to accurate, timely, transparent calculation of injurious depletions and prevention of the injury by replacement in time, location and amount. In addition, different hydrologic conditions of the aquifer and snowpack and predictions for moisture in the summer may well require changes in the operational plan from year to year to ensure complete replacement of injurious depletions.

February 2009 Order, at ¶¶ 208 – 210.

52. The Amended Plan includes the same requirement as the Original Plan that at least 40,000 acres be taken out of production in order to recover the Unconfined Aquifer to levels between 200,000 and 400,000 acre-feet below the storage level that existed on January 1, 1976. The Amended Plan, however, has increased the timeframe for removing this acreage from irrigation from five years to ten years after judicial approval of the plan. See Exhibit 62 (a redline version of the Amended Plan demonstrating the change in language.)

53. This change is a consequence of the Amended Plan placing a priority on replacement of injurious depletions. Allen Davey explained the focus of the Amended Plan “has been changed from recovering the Unconfined Aquifer storage within the boundaries of Subdistrict No. 1 to implementing steps to replace injuries to surface water rights resulting from well pumping in the year following approval of the Plan.” Exhibit 87, Opinion 1. The board of managers concluded that they would have to reallocate Subdistrict resources, as compared to the Original Plan, because of the Amended Plan’s emphasis on replacing injurious depletions to senior surface water rights resulting from Subdistrict well pumping. Accordingly, to ensure that the Plan would be successful, the board of managers extended the time for designating which acres within the Subdistrict would be dried up to achieve this aquifer recovery goal. *Testimony of Carla Worley* (Sept. 29, 2009). The reallocation of resources to give priority to replacing injurious depletions is a reasonable basis for extending the time needed to reach the benchmark the Subdistrict set for taking land out of production to recover groundwater levels in the Unconfined Aquifer.

54. These changes to the Original Plan comport with the Court’s February 2009 Order in which the Court found “The emphasis on restoration of the storage in the Unconfined Aquifer is a reasonable and prudent focus for a subdistrict plan for the Closed Basin area. The restoration of storage provides a reservoir to tap in drought years.” In the February 2009 Order, the court concluded that the Subdistrict’s estimate that 40,000 acres would need to be dried-up “may not prove to be accurate over time and may require adjustment, but there can be no dispute that the proposal in the Plan to reduce irrigated acreage is a reasonable step in the right direction.” February 2009 Order at ¶¶ 59, 60. Nothing in the second trial has altered the Court’s perspective on these issues.

55. In addition, although the Amended Plan increases the timeframe for removing the 40,000 acres from irrigation, it does not change the original goal that the Subdistrict recover the Unconfined Aquifer storage levels of 200,000 to 400,000 acre-feet below the levels measured in 1976, as measured by the Unconfined Aquifer Storage Study, within twenty years. See Exhibit 111, Opinion 3. In its February 2009 Order, the Court approved this twenty-year timeframe, February Order at ¶ 118, and does so again in this Order.

56. During the first trial, the Court heard testimony that without a funding source from an approved plan of water management the Subdistrict is unable to operate. The Court determined in the February 2009 Order that the Subdistrict needs flexibility in implementing a plan of water management. At the same time, the Court emphasized the Subdistrict is required to completely replace injurious depletions to senior water rights and that any proposed plan of water management must so state in unambiguous terms. February 2009 Order, at ¶ 188.

57. Section IV.G. of the Amended Plan complies with the Court's directives when it states that "Whatever financial circumstances may ensue, unless there is replacement of injurious depletions as determined by the RGDSS groundwater model, the Subdistrict Wells will not be entitled to the benefit of exemption for curtailment by the State Engineer pursuant to section 37-92-501(4)(c)." See *also* February 2009 Order, at ¶ 189. The Amended Plan appropriately clarifies and emphasizes the Subdistrict's obligations to replace injurious stream depletions calculated to result from Subdistrict Well pumping.

58. In the February 2009 Order, this Court ordered that the Amended Plan should require Subdistrict No. 1 wells in the Confined Aquifer to change their participation to a Confined Aquifer subdistrict if one is ever created. The Court reached this conclusion for the following reasons:

The Legislature has made maintenance of artesian pressure in the Confined Aquifer within the range that occurred during the period 1978 – 2000 a central principle of a sustainable aquifer system in Water Division No. 3. § 37-92-501(4)(a)(III), C.R.S. Allowing confined wells to participate in this and other subdistricts in the absence of rules and regulations or a subdistrict focused on the Confined Aquifer serves the statutory purposes imperfectly. Once there is a specialized subdistrict for existing Confined wells, continued participation in a subdistrict focused on the Unconfined Aquifer in the Closed Basin would be inconsistent with the need to strive for optimal use.

February 2009 Order, at ¶144.

59. In an effort to have this Court reconsider this requirement, the Amended Plan, like the Original Plan, allows Confined Aquifer wells within the Subdistrict to seek an exemption for inclusion within the Subdistrict. The Amended Plan specifically provides that

If a subdistrict is created for Confined Aquifer wells, Confined Aquifer wells participating in Subdistrict No. 1 may elect to continue as members of Subdistrict No. 1, to change their participation to the Confined Aquifer subdistrict, or to comply with rules and regulations by the State Engineer for such wells. *Id.*

60. In support of this effort to have the Court reconsider the requirements for Confined Aquifer wells in the February 2009 Order, the proponents point to the complexity of the aquifer system, the fact that wells may be dually completed within the Subdistrict, and the desirability of allowing Farms or Farm Units to remain as a single entity within the Subdistrict. *Testimony of Carla Worley* (Sept. 29, 2009). Ms. Worley also emphasized that allowing this would not alter the requirement that any injurious stream depletions calculated to occur from Confined Aquifer well pumping from Subdistrict Wells would have to be remedied. *Id.* at p. 90.

61. In addition, Mr. Slattery testified that in order to recover Confined Aquifer artesian pressures within the Subdistrict, it will be necessary to recover the Unconfined Aquifer in the Subdistrict. *Testimony of James Slattery* (Oct. 5, 2009).

62. There is no doubt that “The Unconfined Aquifer, Confined Aquifer and the Basin’s surface streams are hydraulically connected to varying degrees. *Simpson v. Cotton Creek Circles, LLC*, 181 P.3d 252, 255 (Colo. 2008); *American Water Development, Inc. v. City of Alamosa*, 874 P.2d 352, 367-368 (Colo. 1994).” February 2009 Order ¶ 106, page 38. However, the fact that the recovery of the Confined Aquifer in the Subdistrict is related to the recovery of the Unconfined Aquifer does not convince the Court that the proposed § VI of the Amended Plan is the optimal way to manage these wells. The Court will address this issue below.

C. Appendix 1 of the Amended Plan Contains a Comprehensive Procedure for the Submission and Approval of Annual Replacement Plans to Prevent Injury to Senior Surface Water Rights.

63. Appendix 1 to the Amended Plan is titled the Annual Replacement Plan and contains the proposed comprehensive procedure to calculate and replace injurious depletions to senior surface water rights resulting from Subdistrict Well pumping. The Court will give a brief description of the appendix, but analysis of certain aspects of the appendix are deferred until a later portion of the order. The absence of a detailed description of this process was a principal failure of the Original Plan.

64. Appendix 1 establishes the Plan Year as the period of May 1 to April 30 of each year. The evidence demonstrates that this time frame was selected because it allows the Subdistrict to prepare its Annual Replacement Plan after the data necessary to accurately forecast the necessary replacements are available. *Testimony of Allen Davey* (Sept. 29, 2009). Requiring the Subdistrict to use a Plan Year that begins

earlier in a calendar year would make it harder for the Subdistrict to accurately anticipate stream depletions and other factors necessary to its annual plan.

65. Section 2 of Appendix 1 identifies the information to be collected by the Subdistrict for the Annual Replacement Plan and reported to the State Engineer and Division Engineer by April 15 of each year. As Mr. Davey explained, the data that the Subdistrict will collect and utilize are not all under the Subdistrict's control, but will be gathered in a cooperative effort with the State and Division Engineers. *Id. See also Testimony of Mike Sullivan (Oct. 7, 2009).*

66. Section 3 of Appendix 1 outlines the procedure to estimate anticipated stream depletions for the current Plan Year. It relies upon Response Functions derived from the current version of the RGDSS groundwater model to calculate those depletions. It further describes the methodology by which well pumping within the Subdistrict will be quantified. That procedure is discussed in greater detail later in this ruling.

67. Section 4 of Appendix 1 outlines how the Subdistrict will use the RGDSS groundwater model to derive the Response Functions, and that procedure is also discussed in greater detail later in this ruling.

68. Section 5 of Appendix 1 sets forth the procedures and timelines that the Subdistrict will utilize to replace injurious stream depletions. Section 5.B.i. addresses replacement to the Rio Grande and Conejos River in circumstances where a Compact curtailment exists that is equal to or greater than the rate of the then-occurring injurious stream depletions, and section 5.B.ii. addresses replacement of depletions to those rivers when there is no Compact curtailment or the rate for the Compact curtailment is less than the then-occurring injurious stream depletions resulting from Subdistrict Well pumping. Section 5.C.i. addresses the methodology of replacement of injurious depletions to other stream reaches calculated by the Response Functions.

69. Section 6 of Appendix 1 describes the information that the Subdistrict must submit to the State and Division Engineers to demonstrate the Subdistrict's ability to replace injurious stream depletions during the Plan Year and includes: agreements between the Subdistrict and the Division Engineer regarding administration of replacement water, agreements between the Subdistrict and ditch or reservoir companies regarding replacement water, documentation regarding the cost of obtaining replacement water and contracts related thereto, and documentation proving that the Subdistrict possesses the necessary funds to obtain the necessary replacement water.

70. Section 7 of Appendix 1 describes the data that the Subdistrict will submit to the State Engineer to demonstrate, on a monthly basis, that replacement will occur as required and that the replacement water will prevent injurious stream depletions from Subdistrict well pumping.

71. Section 8 of Appendix 1 addresses the data that the Subdistrict will provide to the Division Engineer regarding the existence and location of the Hydraulic Divide, including a list of monitoring wells by well identification number and location and measurement data from those wells. The Subdistrict will also submit a summary report analyzing the data and describing the current condition and location of the Hydraulic Divide.

72. Section 9 of Appendix 1 states that the Subdistrict will provide the Division Engineer with the tabulation of the five-year running average of Unconfined Aquifer Storage Levels as calculated by Davis Engineering's Unconfined Aquifer Storage Study.

73. Under Section 10 of Appendix 1, the Subdistrict will disclose its annual reporting to the USDA-FSA outlining the number of acres enrolled in the Conservation Reserve Enhancement Program ("CREP"), should that program be approved, including the money allocated to the producers and the amount of water retired for lands enrolled in CREP. Similarly, the Subdistrict will provide a tabulation and corresponding map of the total acreage within the Subdistrict boundaries that is participating in other following programs.

74. Section 11 of Appendix 1 states the Subdistrict will conduct a year-end review of its Plan Year operations and submit its year-end report to the Division Engineer. This includes a recalculation of actual stream depletions using the actual flows and water-use data as opposed to estimates used at the outset of the irrigation season. The year-end report will also address how to remedy any under-replacement determined to have occurred on the Rio Grande, Conejos and other tributaries.

75. Finally, Section 12 of Appendix 1 mandates that any change of water rights necessary to implement the Amended Plan will be obtained in the manner prescribed by law.

76. The 2009 Administrative Record contains the various drafts of Appendix 1 considered by the board of managers. See 2009 AR-7 – 11, 43.

D. Appendix 2 Describes the Methods the Subdistrict will Utilize to Calculate Surface Water Credits as Defined by the Amended Plan.

77. Appendix 2 to the Amended Plan contains the Subdistrict's formula for the calculation of Surface Water Credit as defined in the Amended Plan. Owners of surface water rights within the Subdistrict receive surface water credits which reduce the variable fee they are to be assessed for water they pump. Appendix 2 is intended to illustrate how the calculation of surface water credits will work when the water is used for flood irrigation, direct sprinkler use, recharge in pits and in conjunction with wells

78. Surface Water Credit as calculated by the Subdistrict may be exchanged, traded, leased or sold to other well water users within the Subdistrict. Such a transfer

is a contract between water users and must be reported to the Subdistrict as part of the contracting water users' annual Farm or Farm Unit data to be provided to the Subdistrict by April 15 of each year. Surface Water Credit may only be carried over for one year to offset the following year's pumping or to be exchanged in the following year. See Appendix 2, at p. 1.

79. Appendix 2 was developed by the Water Credit Committee of the board of managers with the help of Allen Davey, the District and Subdistrict's consulting engineer. *Testimony of Carla Worley* (Sept. 29, 2009). Appendix 2 sets forth the methodology that the Subdistrict will utilize to calculate Surface Water Credit for a variety of water-use practices, including surface water applied as recharge, surface water applied for flood irrigation, and surface water used through a sprinkler. The methodology for calculating Surface Water Credit will account for each of these different practices common in Subdistrict No. 1. *Id.*

80. The Administrative Record contains various iterations of the Surface Water Credit calculations considered and ultimately approved by the board of managers. See 2009 AR-12, 19, 37, 39, 41, 70.

E. Appendix 3: Inventory of Subdistrict Wells

81. Appendix 3 to the Amended Plan contains the Subdistrict's Well Database. In its February Order, the Court held that any Amended Plan include an inventory of Subdistrict Wells and that:

This inventory should include the standard identifications used in the State Engineer's Hydrobase, such as well permit number or State Engineer receipt, adjudication case(s), Aquamap/GPS and legal descriptions of location, depth, aquifer(s) from which it draws, decreed amount, date of priority, use, irrigated acreage, crop patterns, irrigation practices and such other specific identification data as the subdistrict and State Engineer believe appropriate.

February 2009 Order, at ¶ 212. The Subdistrict, in cooperation with the Division of Water Resources, prepared a list of Subdistrict Wells by category. Appendix 3 states, and the testimony at trial was clear, that the data accumulated for the Subdistrict Well Database comes from several sources and that this is the first such comprehensive collection of well information pertaining to Subdistrict No. 1. See Appendix 3, at p.1. Accordingly, the well database is "considered a draft and will continue to be updated." *Id.*

82. Appendix 3, located at 2009 AR-71, contains the list of Subdistrict Wells before the Court and is roughly divided into five categories: (1) Active wells, (2) Inactive wells, (3) Non-Subdistrict wells, (4) Augmentation plan wells, and (5) Abandoned wells. Each well is further delineated by a series of identifying factors as set forth in Appendix 3, including: the well structure number, the structure name, the receipt number maintained by the Division of Water Resources relating to the paperwork associated

with the well, the Hydrobase coordinates related to the well, the coordinates related to the well for the purposes of the well metering rules in Water Division 3, the Hydrobase legal description of the well location, the depth of the well, the aquifer layer that the well is listed to be completed in as shown by the Division of Water Resources, the absolute decreed rate for the well, the conditional decreed rate for the well, the absolute decreed rate for alternate points of diversions or exchanges, the conditional decreed rate for alternate points of diversions or exchanges, the adjudication date, the appropriation date, the well owner's name, the decreed uses for the wells, the proposed well pumping from the permit application, the actual well pumping rate from the well construction or pump report, the date of any well abandonment affidavit, the date a well was plugged as referenced by the abandonment affidavit, the status of the well – either active or inactive – and, finally whether the well has a meter. *Id.* at p. 3.

83. Allen Davey testified that he, along with his colleagues at Davis Engineering Service, Inc., developed Appendix 3 and sorted the well data he received from the Division of Water Resources into different categories. He began by sorting the wells to find duplicate well identification numbers (WDIDs). Second, he sorted the data for abandoned wells, and compared referenced abandoned wells to the WDIDs of the whole group of wells to remove the abandoned wells from the database. Third, he attempted to identify wells that were associated with augmentation plans within the Subdistrict by identifying WDIDs matching those on an augmentation plan list obtained from the Division of Water Resources with those contained in the master Subdistrict Well list. Fourth, he identified “Non-Subdistrict Wells” by searching for non-irrigation wells identified by use code and display name, i.e. school, town, city, so that non-irrigation wells could be removed from the list. Finally, he sorted the Subdistrict Well Database by Active/Inactive well status. *Id.* at 3 – 4; *see also Testimony of Allen Davey* (Sept. 29, 2009)

84. It is undisputed that a complete list of Subdistrict Wells may change from year to year. Wells may be abandoned, included in an augmentation plan, or changed from active to inactive status through a fallowing program. *See Testimony of Allen Davey* (Sept. 29, 2009). In addition, wells may come into the Subdistrict via contract, although any such wells have yet to be identified and are not yet a part of the Subdistrict Well Database. The Subdistrict must report each Plan Year's updated Subdistrict Well Database to the State and Division Engineers as a part of the approval of any Annual Replacement Plan and must incorporate all of the changes to the Subdistrict Well Database. *See Appendix 5, at p. 2.*

85. The 2009 Administrative Record contains the various iterations of the Subdistrict Well Database considered by the board of managers. *See* 2009 AR-13, 14, 15, 18.

F. Appendix 4: The Process and Procedure that the Subdistrict and District will use in Preparing Budgets and Accounting for Expenses in Implementation of the Amended Plan

86. Before the first phase of the trial, the objections filed by Farming Technology Corporation and the Skyview Parties were resolved by stipulation. The Court approved the stipulation in advance of trial, with the limitation that the stipulation “is not and cannot be part of or a modification of the Water Management Plan.” *Order Re Objection to Stipulation* (October 22, 2008). The Court noted, “Of course, the terms of this stipulation may well be incorporated in an Amended Plan.” February 2009 Order, at ¶ 9. Appendix 4 incorporates the stipulation approved before the first trial into the Amended Plan and specifically addresses the process and procedure that the Subdistrict and District will undertake in fulfilling its duties to its members regarding budgeting and accounting procedures.

G. Appendix 5: the Subdistrict’s Operational Timeline

87. Appendix 5 contains the template for the Operational Timelines for the Amended Plan and sets forth the tasks contemplated by Appendix 1 with estimated beginning dates and estimated completion dates for each task. This operational timeline describes the time and tasks the Subdistrict will perform annually as part of the Amended Plan.

III. MIXED FINDINGS OF FACT AND CONCLUSIONS OF LAW REGARDING CHALLENGES TO THE AMENDED PLAN

88. The Court begins its review of the Amended Plan with the principles and goals set out in the General Assembly’s statement of the purpose in the Water Right Determination and Administration Act of 1969 (1969 Act) that the waters of the state are:

“the property of the public, dedicated to the use of the people of the state, subject to appropriation and use in accordance with sections 5 and 6 of article XVI of the state constitution and this article. As incident thereto, it is the policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all waters of this state.” § 37-92-102(1)(a).

89. The Supreme Court has described the purpose of the 1969 Act in *Simpson v. Bijou Irrigation*, 69 P.3d 50, at 60 (Colo. 2003):

The purpose of the Act was “to integrate the appropriation, use and administration of underground water tributary to a stream with the use of surface water, in such a way as to maximize the beneficial use of all of the water of this state.” *Id.*, § 148-21-2(1) at 1200 (currently codified at § 37-92-102(1)(a), 10 C.R.S. (2002)). The Act ushered in a host of changes to the state water law administrative scheme. It established the current

system of water divisions and courts, *Id.* section 148-21-8 through 148-21-11 at 1202-05 (currently codified at §§ 37-92-201 through 37-92-204, 10 C.R.S. (2002)), and set forth detailed administrative duties of the State and Division Engineers, particularly with regard to the integration of groundwater into the water law system. *Id.* § 148-21-17 through 148-21-45 at 1205-19 (currently codified at §§ 37-92-301 through 37-92-504, 10 C.R.S. (2002)).

As a result of the Act's stated policy of conjunctive use, wells were required to be integrated into the priority system, although unadjudicated wells in existence prior to 1969 were allowed to continue. See *Id.* § 148-21-2(2)(a) at 1200-01 ("Water rights and uses heretofore vested in any person by virtue of previous or existing laws, *including an appropriation from a well*, shall be protected subject to the provisions of this article.") (emphasis added) (currently codified at § 37-92-102(2)(a), 10 C.R.S. (2002) in slightly modified form). The Act, nevertheless, encouraged the adjudication of existing wells by allowing well owners who filed an application by July 1, 1971, to receive a water decree with a priority dating back to their original appropriation date. *Id.* § 148-21-22 at 1212.

90. Section 37-92-102(1)(b) goes on to state that "The existing use of ground water, either independently or in conjunction with surface rights, shall be recognized to the fullest extent possible, subject to the preservation of other existing vested rights, but at his own point of diversion on a natural watercourse, each diverter must establish some reasonable means of effectuating his diversion."

91. Section 37-92-501(1) follows this emphasis on maximum utilization while protecting senior water rights with the following language:

It is the legislative intent that the operation of this section shall not be used to allow ground water withdrawal which would deprive senior surface rights of the amount of water to which said surface rights would have been entitled in the absence of such ground water withdrawal, and that ground water diversions shall not be curtailed nor required to replace water withdrawn, for the benefit of surface right priorities, even though such surface right priorities be senior in priority dates, when, assuming the absence of ground water withdrawal by junior priorities, water would not have been available for diversion by such surface right under the priority system.

92. The intent of the General Assembly to "maximize" or "optimize" the use of both surface and ground water is easy to articulate but has proven to be difficult to accomplish or administer. There follows in this opinion considerable discussion of whether the Amended Plan adequately address the injurious depletions to senior surface rights which result from the pumping of junior wells and the mandates of the Rio Grande Compact. Whether the Amended Plan sufficiently protects the senior

surface rights and provides the “complete replacement of injurious depletions” required in the February 2009 Order is the primary point of contention between the Supporters and the Objectors in this trial.

93. The Court will now turn to the various legal questions presented in these combined cases.

A. The Administrative Record is a Complete and Sufficient Record for Changes Incorporated into the Amended Plan.

94. The District and Subdistrict prepared and provided to all parties in these consolidated cases an update to the Administrative Record containing all non-privileged documents relating to the preparation and approval of the Amended Plan that are in the custody of the District or the Subdistrict, including a privilege log describing any privileged material withheld. The 2009 Administrative Record spans the time from the Court’s February Order to June 15, 2009. It is an update to the Administrative Record provided in the first phase of this litigation. The 2009 Administrative Record is contained in 2009 AR-1 – 77.

95. The 2009 Administrative Record constitutes a comprehensive record of the material maintained by the District and Subdistrict pertaining to the development of the Amended Plan and the operation of the Subdistrict. It is a complete record of the material that the board of managers and the District board of directors considered when preparing and adopting the Amended Plan. This 2009 Administrative Record provides an adequate record for judicial review in Case No. 06CV64 of the bases underlying the actions of the Subdistrict’s board of managers and the District’s board of directors in preparing and adopting the Amended Plan.

B. The Phase 5 RGDSS Groundwater Model is the Appropriate Tool for Use in Determining Stream Depletions from the Operation of Subdistrict Wells.

96. In 04CW24, this Court heard extensive testimony regarding the construction and application of the RGDSS groundwater model, version P13, also called the Phase 4 model. See 04CW24 Decree, ¶¶ 272 – 385. This Court ultimately ruled that the RGDSS groundwater model was an appropriate tool for the purposes for which it was offered:

361. Based upon the totality of the evidence, the Court finds that the RGDSS groundwater model has achieved a reasonable degree of calibration for a basin-scale model, particularly given the complexities that this groundwater model must address. See for example, *Transcript (Brendecke) Vol. XIII* at 2396. It is specifically useful for the promulgation and evaluation of the confined aquifer Rules proposed in this case and for evaluating the fundamental question of sustainability of the aquifer. See *Transcript (Brendecke) Vol. XIII* at 2397.

362. The Protestors' experts Mr. Hahn and Mr. Norris both agreed that the RGDSS is a very complex model and one that attempts to deal with complicated sets of stresses. The Court further finds that this degree of calibration is sufficient for the purpose for which the model is to be used under the Rules. The Court reiterates, however, that there are areas in the Valley, in particular the Costilla Plain, where the model does not perform as well as it does in other areas of the Valley and where it would be a "great idea" to improve the model. *Transcript (Schreüder) Vol. XI* at p. 2192....Likewise, the Court understands that the State Engineer intends to continue his work to improve the groundwater model and address the remaining unresolved problems. The Court expects and intends that the State Engineer will do so before applying the groundwater model to other uses. The Court concludes that even with the obvious imperfections that exist in the RGDSS groundwater model P13, it is calibrated to a reasonable degree and that it is appropriate to use it in the manner contemplated by the proposed Rules.

04CW24 Decree at ¶¶ 361-362.

97. Since the conclusion of the trial in 04CW24, the ongoing development of the Rio Grande Decision Support System and its groundwater model have continued. In this trial, Dr. Willem A Schreüder described the continued improvements to the RGDSS groundwater model:

The current model, the so-called "Phase 5 model" (X5A00P12), reflects numerous improvements over the Phase 4 model to address refinements in the Conceptual Model, reflects new data, improved technology, and corrects errors. It is the most complete model of the [San Luis Valley] groundwater flow system constructed to date and is sufficiently refined to form a sound scientific basis for evaluating the depletions to surface streams from Subdistrict No. 1 pumping.

Exhibit 94, Opinion 1.

98. The enhancements described by Dr. Schreüder include: correcting the layer of the model from which some wells withdraw water; reanalyzing and, in some cases, collecting additional data from the Capulin area in Conejos County, the Great Sand Dunes National Park and surrounding area, the Mesita area in the Costilla Plain in southern Costilla County, and the San Antonio River area in Conejos County; several hundred additional water level observations in the Great Sand Dunes National Park area; ongoing water level and streamflow measurements; additional surveys of the Rio Grande stream channel and additional data on seepage runs; refining the network of explicitly modeled streams to include 22 smaller streams that were represented as part of rim-recharge in the Phase 4 model; and representation of the

historic subirrigation of crops. Exhibit 109, Opinion 3; Exhibit 92; Exhibit 94, Opinions 1.1 – 1.4.

99. Although the data from the mandatory well-metering program required by the State Engineer and approved by this Court in 05CW12 have not yet been incorporated into the model, this is because data from the 2009 irrigation season will be the first set of meter readings that the engineers and modelers feel are reasonably accurate and appropriate for inclusion in the model. As the RGDSS is updated to include the year 2009 and beyond, this data will be incorporated. *Testimony of Willem Schreüder* (Oct. 1, 2009) The accuracy of and the uses for the RGDSS groundwater model will continue to improve and expand over time.

100. These enhancements were conducted through a peer review process involving experts in different fields who gather to review the current state of the model, identify areas for improvement and come to a consensus on how to address those areas. *Testimony of James Slattery* (Oct. 5, 2009). “Through this process a forum for exchange of ideas has developed between the modelers, other peer reviewers, and the hydrogeologists. The peer review process has resulted in a better model that more closely matches the observed conditions.” Exhibit 92, at 6. Dr. Schreüder testified as to the overall improvement in results, focusing on the difference between the predicted water level measurements made by the model and the actual recorded data, known as “residuals.” This testimony shows the improvements in the residuals between the Phase 4 and Phase 5 models. Exhibits 96 – 97; *Testimony of Willem Schreüder* (Oct. 1, 2009). Dr. Schreüder concluded that, overall, the Phase 5 model is better than the Phase 4 model and is sufficiently calibrated to be a reliable scientific basis for the purposes for which it is being applied in this case. *Testimony of Willem Schreüder* (Oct. 1, 2009).

101. Objectors presented no evidence to show that the RGDSS groundwater model is not the best available technology or that the use of the RGDSS groundwater model is inappropriate. In fact, Mr. Mefford, the Acequia Objectors’ expert, stated that he had not run the RGDSS groundwater model or taken any steps to evaluate the model itself. Exhibit 50, at 1. Although the Phase 5 model is technologically and operationally complex, that complexity is necessary to represent the physical system to a reasonable degree for reasons described in depth in this Court’s opinion in 04CW24.

102. The Supporters’ experts, Drs. Schreüder and Brendecke and Mr. Slattery, and the Objectors’ expert, Mr. Mefford, generally concur that the existing RGDSS groundwater model is the best available tool to assess impacts from well pumping to surface streams. The Court agrees.

103. Mr. Alspaugh challenged the model’s depiction of La Garita Creek. In particular, he questioned why the model did not represent depletions from the La Garita Ditch, which he stated had been decreed out of La Garita Creek. At the Court’s request, Mr. Slattery, joined by Mr. Vandiver, Mr. Davey and Dr. Schreüder, investigated these allegations. After the investigation, the evidence presented was

uncontroverted that the La Garita Ditch headgate was located approximately one-half mile east of Highway 17 on the eastern side of the San Luis Valley and the ditch headgate structure was located on a dry channel connecting several dry playas. There was no evidence of any water course on the ground or on the U.S.G.S. maps indicating a continuous stream channel between La Garita Creek on the west side of the San Luis Valley and the headgate of the La Garita Ditch. *Testimony of James Slattery* (Oct. 8, 2009). After Mr. Slattery testified to the results of his investigation, Mr. Alspaugh acknowledged that a channel did not exist and that the feature upon which the headgate is located is nothing more than a dry wash without regular flows of any kind making its representation in the model problematic, if not impossible. See *Testimony of Perry Alspaugh* (Oct. 9, 2009). The evidence thus demonstrated that it would be contrary to fact for the RGDSS groundwater model to depict the La Garita Ditch in the manner Mr. Alspaugh suggested.

104. The Court finds that the enhancements made to the Phase 5 groundwater model are appropriate and increase the predictive accuracy of the model. Further, the Court finds that the Phase 5 groundwater model as used in this case is reasonably accurate for its intended purpose of determining the amount, timing and location of stream depletions caused by groundwater withdrawals by Subdistrict Wells and approves the Phase 5 groundwater model for such purposes. However, the Court understands the present limitations of the model and that the model currently cannot be used to determine stream impacts caused by a single well or most small groups of wells' pumping. *Testimony of Willem Schreüder* (Oct. 1, 2009); *Testimony of James Slattery* (Oct. 6, 2009); *Testimony of Charles Brendecke* (Oct. 6, 2009). There are also limits on its accuracy in predicting depletions to the smaller tributaries. As the model is further improved, its predictive abilities will continue to improve as well.

C. Sufficiency of Amended Plan – Methodology for Calculation and Replacement of Injurious Depletions

105. The Objectors continue to argue that the Amended Plan is not sufficiently detailed to constitute a “comprehensive and detailed plan” under the terms of section 37-48-126. The Acequia Objectors argue that the Amended Plan fails to protect senior water rights because the Amended Plan lacks sufficient detail about how depletions will be calculated, and about the procedures that will be used to make replacements, fails to identify replacement sources and lacks terms and conditions to evaluate the adequacy of replacement supplies. These failures, the Objectors allege, constitute violations of Colorado law and the Colorado Constitution.

106. The method used to predict stream depletions is directly related to the historical conjunctive-use practices in the San Luis Valley generally and in the Subdistrict in particular. The Court will therefore review those practices before describing and evaluating the methodology described in the Amended Plan.

1. Conjunctive Use of Surface and Groundwater

a. Historical Irrigation Practices

107. This Court's Findings of Fact, Conclusions of Law, Judgment and Decree in Case No. 04CW24, the "Confined Aquifer New Use Rules" case contains extensive findings on the history of irrigation practices in the San Luis Valley, including the practice of subirrigation, the practice of using the Unconfined Aquifer as a reservoir for the storage and withdrawal of water, and the practices employed to recharge aquifers to sustain irrigation practices. See Decree, Case No. 04CW24 at ¶¶ 68-80. The Court has taken judicial notice of that decree in this proceeding. Because this history is important to the determination of the issues in this case and in order to provide a complete understanding of the basis of this decision, the Court will review that history.

In Case No. 04CW24 this Court found:

71. After the railroad reached the Valley in about 1879, in 1882 the era of large irrigation canal building on the Rio Grande began and continued for some ten years. *Joint Investigation in the Upper Rio Grande Basin in Colorado, New Mexico and Texas 1936-1937*. This time period saw the construction of many large canals including the Rio Grande Canal, the Farmers' Union Canal, the Monte Vista Canal, the Prairie Ditch, the Valley Canal, and the Costilla Ditch. *Id.* Accompanying the canal building was a rapid increase in the amount of land under irrigation. *Id.* In 1880 there were 131,475 acres under irrigation in the Valley; in 1892 there were 398,305 irrigated acres; by 1929 that number reached a maximum of 736,477 irrigated acres, which then declined to about 699,000 acres in 1935. *Id.* at 69. In 1998 there were some 613,000 acres under irrigation in the Valley. State's Exhibit No. 6, *RGDSS Final Memorandum Irrigated Lands Assessment, Task 1, Table 6, p. 36.*

72. Because the Rio Grande has a relatively short period of high flows, crop demands for water continue long after the peak flows have passed. Water users sought to construct reservoirs to store a portion of the high flows for later use. The development of reservoir storage in the headwaters of the streams in the Valley was hindered by a series of embargos on the use of federal lands for reservoir construction. The first embargo was imposed in 1896 while the United States was negotiating a treaty on the Rio Grande with the Republic of Mexico. An embargo was re-imposed during the negotiation of the Compact between the States of Colorado, New Mexico and Texas. *Joint Investigation* at pp. 67-68; *Alamosa-La Jara v. Gould*, 674 P.2d at 918 (Colo. 1983).

73. Without adequate reservoir storage, water users turned to the use of the unconfined aquifer as a storage reservoir through the practice of subirrigation. This helped solve the water supply timing problem that

otherwise only could be addressed with surface water storage, although it created a number of other problems. With respect to the practice of subirrigation, this Court (*footnote omitted*) has previously found:

[T]his unique mode of irrigation was highly efficient from the point of view of the water users. It eliminated many capital and labor costs. *Most importantly, subirrigation allowed water users to make parallel their water supply and the actual demands of growing crops.* The necessity for achieving parallel timing stems from the fact that the Rio Grande is a typical western stream in that it has a relatively short period of high flow. Crop demands, however, continue long after the peak flows have passed and water available for direct flow diversion is then less than sufficient. Because the practice of subirrigation maintained an underground water reservoir after the peak flows had passed, water was available to the crops for an extended period, thus circumventing the water supply timing problems inherent in a western surface irrigation system. . . .

Findings of Fact, Conclusions of Law, Judgment and Decree, Case No. W-3979 at page 6. (Emphasis supplied)

74. Subirrigation by flooding was once very common in many parts of the Valley, particularly in the Closed Basin area north of the Rio Grande. The *Joint Investigation* at 67 notes: Subirrigation was

[c]laimed to be essential to the successful growth of crops under the soil and water-supply conditions which prevail. By it, the ground water is built up to within 1 to 3 feet of the surface and water is then allowed to run slowly through small ditches spaced about 8 rods apart. Water from these ditches seeps outward, supplying moisture to the plants. *This method really constitutes in part a substitution of underground storage for "headwater" or stream storage in an effort to adjust the water supply to the irrigation demand.*

It results, however, in overdiversion during the spring run-off, in unduly high water tables, and in excessive evaporation and transpiration losses.

Id. (Emphasis supplied).

75. In the Closed Basin area, the effect of this practice essentially was to create an "artificial" aquifer:

With continued large diversions from Rio Grande to the porous and shallow soils in the closed basin, the

underground basin had filled rapidly; the water table had risen from depths ranging from 40 feet on the east to 100 feet on the west to a position practically at the surface on the east, bordering the sump, and to a level within 10 to 15 feet of the surface on the west.

Id. See also State's Exhibit No. 40, Powell, William, J., *Ground-Water Resources of the San Luis Valley, Colorado* 1958 ("*Powell*"), at pp. 56-57. Much, but not all, of the water in the unconfined aquifer of the Closed Basin results from diversions from the Rio Grande.

108. This practice of subirrigation and the use of the Valley's aquifers as a reservoir to make the water supply more parallel to crop water demands is also discussed in detail in Exhibits 77.1 and 77.2, the *San Luis Valley Project – Wagon Wheel Gap Reservoir, Platoro Reservoir, Mogote Reservoir, Closed Basin Drain*, March 1939, Vols. I and II, by R.J. Tipton, prepared for the Colorado Water Conservation Board. Mr. Tipton reported that 300,000 to 400,000 acre-feet of water annually was diverted from the Rio Grande to irrigate lands lying in the Closed Basin. Exhibit 77.1, at p. 16. This report explains how subirrigation was used to make the water supply more parallel to crop demands by storing water in the aquifer and causing the groundwater levels to rise to near the roots of the crops. *Id.* at p. 27-28. This was accomplished by the diversion of large quantities of water during the peak run-off and storing it in the aquifer. This practice of "over-diversion" by ditches early in the year for groundwater storage in aid of subirrigation during the years 1928 through 1938 is shown graphically in figures SLV-6 through SLV-16 of Exhibit 77.2. See also Exhibit 77.1, at p. 31-35 and Exhibit 78, at p. 29-31.

109. As noted above, the result of this practice in the Closed Basin was to create an "artificial" aquifer, that is, an aquifer that was filled largely by diversions into the Closed Basin from the Rio Grande. While natural drainage tributary to the Closed Basin is partially responsible for water in the Unconfined Aquifer, it did not cause the groundwater levels to rise to or near the ground surface, except possibly in the trough or "sump" of the Valley prior to the commencement of irrigation. See Exhibit 78, at p. 4, *Soil Conditions and Drainage in the San Luis Valley, State of Colorado*, by R.J. Tipton, September 1924. The importation of water from the Rio Grande into the Closed Basin caused the water levels in the Unconfined Aquifer to rise appreciably. In 1886-1896, the water table on the west side of the Valley on the alluvial slope under the Rio Grande Canal was reported to be at depths of 40 to 100 feet, and it had risen to depths of 7 to 16 feet by 1924. Likewise, the depth to water between the Gunbarrel Road (U.S. Highway 285) and Mosca, Colorado, was reported to be about 40 feet in 1884, and had risen to about 12 feet in 1900, and to between 0-3 feet in 1924. *Id.*, at 9. This increase in water levels occurred because of the importation of water from the Rio Grande into the Closed Basin.

110. The practice of subirrigation had both drawbacks and critics. The substantial rise in groundwater levels caused some farm land to become "seeped" which, in turn, forced the abandonment of farm land on the east side of the Valley. See

Exhibits 77.1 at pp. 61-62; Exhibit 78 at pp. 5-15; Exhibit 79.1 at pp. 27-29. To alleviate this “seeped” condition many drains were constructed to lower groundwater levels and return the land to productive agriculture. Exhibit 77.1 at pp. 61-62; Exhibit 78 at pp. 39A, 41-45.

111. As the Court found in Case No. 04CW24:

Subirrigation is no longer practiced widely in the San Luis Valley. As explained by this Court in the decrees in Cases No. W-3979 and W-3980:

19. A combination of factors has worked to render subirrigation no longer a feasible method of irrigation. An extended period of low water years, the attendant imposition of curtailments on diversions from the Rio Grande in aid of assuring compliance with the Rio Grande Compact, and the development of pumps to extract huge quantities of ground water were all factors contributing to a lowering of the ground water table in the Closed Basin area. Such a lowered water table in turn eliminates the possibility for subirrigation.

20. The increased use of wells drilled into the underground aquifers became an important part of the economy of the Closed Basin. While subirrigation was still feasible, the essentially artificial aquifer created by that irrigation practice in which the water table level was quite near to the ground surface assured that irrigation water could be pumped from that shallow aquifer quite economically. This pumping itself, however, worked at cross purposes with the method of subirrigation because subbing depends on holding the water table near the ground surface and pumping from the shallow aquifers tends to lower the water table. See Powell at pages 57 and 63; Siebenthal at page 30.

* * * *

22. The advent of center pivot sprinklers once again changed the irrigation practices in the Closed Basin. Sprinkler irrigation has increased the yield of crops and represents a more efficient use of water with reduced waste. Water for the sprinklers is most efficiently supplied from wells in the underground aquifers but, because these aquifers are not maintained by natural recharge, continuation of pumping is necessarily dependent upon artificial recharge. See Powell at pages 51-52. Just as they have in the past, [San Luis Valley Irrigation District] landowners have imported water into the Closed Basin from the Rio Grande and used it to recharge the underground aquifers, in effect using these aquifers as storage facilities. The stored water is then extracted from the aquifers by means of wells which supply the sprinklers.

Finding of Fact, Conclusions of Law, Judgment and Decree, Case W-3980 at 6-7. In Case No. 04CW24 this Court also found:

78. While the earliest use of center pivot sprinkler systems occurred in the Closed Basin area north of the Rio Grande, center pivot sprinklers are now used throughout the Valley. State's Exhibit No. 6 at p. 38, Fig. 8, 13 and 14. And while many center pivot irrigation systems are supplied only from groundwater, the practice of artificially recharging the unconfined aquifer with surface water is what sustains the groundwater supply in many parts of the Valley. In addition, some farmers use both surface water and groundwater to their sprinkler systems for irrigation of their crops. *Id.* The evidence establishes that it is not uncommon, particularly south of the Rio Grande, to deliver surface water to center pivot sprinklers and to use groundwater to supplement the surface water supply in times of shortage. The testimony of Roy Helms illustrated the use of both surface and groundwater through sprinklers in this manner. See *Transcript (Helms), Vol. VI, pages 1169-1184*. The evidence also establishes that surface water used for flood irrigation is also supplemented with groundwater in times of shortage. And, as established both by the evidence in this case and by the prior decrees of this Court in Cases No. W-3979, W-3980, 1995 CW 45, and 1995 CW 46 (judicially noticed in this case), there long has been a practice of using surface water to recharge or replenish the unconfined aquifer to provide a water supply for wells dependent upon that aquifer. The testimony of Ray Wright detailed his varied use of water over time including all the practices described above. *Transcript (Wright) Vol VII page 1270-74*. These practices of conjunctive use of surface water and groundwater are common in much of the San Luis Valley, with groundwater recharge being practiced most extensively in the Closed Basin area north of the Rio Grande.

112. The essential role of early season diversions of surface water for underground storage in both the historical subirrigation practice and the current sprinkler irrigation practice was also explained by the Supporters' expert witness Mr. James Slattery. He described subirrigation in the San Luis Valley as an ingenious way of solving the practical problem that surface water supplies did not parallel crop demands. The solution was to use the aquifer as a reservoir to store the large spring run-off for later use. See *Testimony of James Slattery* (Oct. 4, 2009). Mr. Slattery explained that the use of aquifer storage for sprinkler irrigation is just an extension of farmers' use of water for subirrigation. The surface water is diverted, as it was historically, and then is directly recharged into the aquifer for subsequent withdrawal by wells. *Id.* Mr. Slattery stated that the water diverted by wells for sprinkler irrigation was, in effect, the withdrawal of the surface water that the farmers had recharged and stored in the aquifer. Mr. Slattery explained that historically this extensive recharge practice was unique to the San Luis Valley and is unlike the historical use of groundwater in other parts of the state. As an example, Mr. Slattery explained that in the Arkansas River Basin groundwater historically was used to meet crop demands

after surface water supplies were gone, while in the San Luis Valley, including Subdistrict No. 1, surface water is recharged into the aquifers and then withdrawn by wells for irrigation. *Id.*

113. The Acequia Objectors' expert witness, Mr. Scott Mefford agreed with this description of the historical subirrigation practice and the current recharge practice used for sprinkler irrigation. *Testimony of Scott Mefford* (Oct. 8, 2009). He further agreed that the point of placing the recharge in the Unconfined Aquifer is to store the water in the aquifer while it is available from the river in order to withdraw it later in the irrigation season when the crops need the water and the water can be withdrawn and pumped through sprinklers.

114. The historical practice of using the aquifers to store surface water for subsequent use was confirmed by the testimony of several of the Objectors. Mr. Norman Slade testified that despite having a good surface water supply, he needed his wells to be able to farm. *Testimony of Norman Slade* (Oct. 8, 2009). Mr. Slade explained that he received most of his surface water in three weeks, so it was necessary for him to store it in the aquifer and pump it out later in the season. *Id.* Mr. Slade testified that if he was unable to store water in the aquifer and withdraw it later he would be unable to farm, and it was his opinion that this was also true for most farms north of the Rio Grande. *Id.* at p. 37-39. Objector Richard Ramstetter likewise acknowledged that he has to rely upon his wells to supply water to finish his crops and that he would have to change crops if required to rely solely on surface water. *Testimony of Richard Ramstetter* (Oct, 9, 2009).

115. The evidence at this trial is clear that the Unconfined Aquifer in the Closed Basin has historically served as an underground reservoir, an "artificial" aquifer in the sense that the natural inflow into the basin is insufficient to fill the aquifer. It is the historical practice of diverting water from the Rio Grande into the Closed Basin, the historical practice of subirrigation, and the current practice of aquifer recharge, that have resulted in this aquifer being so highly productive and capable of sustaining the substantial agricultural enterprises dependent upon it. It is because of this historical and current dependence on the underground reservoir that is the Unconfined Aquifer in the Closed Basin that the Amended Plan places so much emphasis on the maintenance of the Unconfined Aquifer in historic ranges and with an eye to the long-term sustainability of both the aquifers.

2. Determination of Groundwater Consumptive Use for Purposes of Calculation of Stream Depletions by Subdistrict Wells.

- a. Recharge Decrees in Cases No. W-3979, W-3980, 96CW45 and 96CW46.

116. The four largest ditches diverting water from the Rio Grande into the Closed Basin have sought and obtained decrees recognizing their historical practice of diverting water from the Rio Grande and storing that water in the aquifer and its subsequent withdrawal through wells for beneficial use. These decrees, referred to as

“recharge decrees,” were entered in this Court’s Case Nos. W-3979 (Rio Grande Canal); W-3980 (Farmers Union Canal); 96CW45 (Prairie Ditch); and 96CW46 (San Luis Valley Canal). The decrees in Case No. W-3979 and W-3980 involve both confirmation of the historical recharge practices and the storage of the respective ditches’ direct flow water rights upstream in Rio Grande, Santa Maria and Continental Reservoirs. The decrees in Cases 96CW45 and 96CW46 are limited to confirmation of historical recharge practices. With respect to the historical recharge practice, each decree contains a methodology for quantification of the recharge and grants the right to use, reuse, and fully consume the water so recharged. For example, the decree in Case No. W-3979, entered on December 27, 1984, provides that recharge credit will be computed as:

- a. Confined Aquifer Recharge =
0.20 [0.95 (Headgate Diversion – Farm Deliveries)
+ 0.40 (Farm Deliveries)]
- b. Unconfined Aquifer Recharge =
0.70 [0.95 (Headgate Diversion – Farm Deliveries)
+ 0.40 (Farm Deliveries)]

117. This formula recognizes that approximately 10% of the recharge is tributary to the Rio Grande, that 20% of the recharge is tributary to the Confined Aquifer in the Closed Basin (west of the blue clay series) and the remaining 70% is tributary to the Unconfined Aquifer in the Closed Basin. See Decree W-3979 at ¶¶ 13, 37. At the time this decree was entered approximately 70% of the lands served by the Rio Grande Canal were irrigated with center pivot sprinklers. The decree finds that recharge occurs through “losses” or seepage from canals and laterals and from deep percolation from surface irrigation. *Id.* at ¶¶ 27-28. The decree defines surface irrigation as water applied by either sprinkler or flood irrigation. *Id.* at ¶ 28. The decree grants a recharge credit of 40% for all water applied to surface irrigation.¹ *Id.* at ¶¶ 39, 71.

118. The decree in W-3979 also determined that:

60. The water diverted by the Rio Grande Canal across the hydraulic divide as defined in paragraph 14 into the Closed Basin has been introduced into an unconnected stream system and is “foreign” or “imported” water, within the meaning of Colo. Rev. Stat. § 37-82-106 (Supp. 1983).

¹ As discussed below, the RGDSS groundwater model treats surface water as directly recharged for lands served by sprinklers and only gives a 17% return flow for such use. *Testimony of Allen Davey* (Sept. 30, 2008); see also Exhibit 87. In effect, it treats the water applied by sprinklers as 83% consumed rather than only 60% consumed as contemplated by the decree.

61. Application of such foreign or imported water for recharge of underground aquifers is not a relinquishment of dominion or control over the water.

62. The use of water for recharge of underground aquifers coupled with subsequent withdrawal for application to irrigation is a beneficial use.

63. The proposed method of recharge of the underground aquifers through the direct flow and stored water rights of the RGCWUA constitutes the placing of water in an underground aquifer by other than natural means by a person having a decreed right thereto, within the meaning of Colo. Rev. Stat. §§ 37-87-101(2), 37-92-103(10.5) and 37-92-305(9)(c) (Supp. 1983) .

Decree, Case No. W-3979.

119. That decree goes on to provide:

70. The historical irrigation practice of recharging the underground aquifers by the application of direct flow water rights to the surface and utilizing the water from the recharged underground aquifers for irrigation purposes is hereby confirmed and decreed. The right of Applicant's shareholders to reclaim through well withdrawals from the underground aquifers an amount of water equivalent to that applied on the surface to recharge those aquifers is hereby confirmed and decreed. The amount of ditch loss as described in paragraphs 26 and 27 is included in this recharge credit. Allocation of the recharge water credit among RGCWUA shareholders shall be pro rata, based on each shareholder's proportional number of shares in the RGCWUA.

120. The decree in Case No. W-3980² for the San Luis Valley Irrigation District was also entered on December 27, 1984. That decree is substantially the same as the decree in Case No. W-3979 except that it involves the direct flow water rights decreed to the Farmers Union Canal. The decree finds that 100% of the Farmers Union Canal's deliveries enter the Closed Basin and all of these diversions are tributary to the Unconfined Aquifer. Accordingly, that decree does not allocate any recharge to the Confined Aquifer. The decree in W-3980 contains, in paragraphs 59-62 and 69, the same findings and conclusions of law for the Farmers Union Canal as found in paragraphs 60-63 and 70 of the decree in Case No. W-3979. The recharge credit in Case No. W-3980 is allocated among San Luis Valley Irrigation District landowners pro rata, based upon the landowner's proportional number of acres assessed within the district.

² On February 5, 1988, this Court entered an order correcting a clerical error in paragraph 59 of the decree substituting the terms "Farmers Union Canal" for "Rio Grande Canal."

121. The recharge decree for the Prairie Ditch, Case No. 96CW45, was entered on November 30, 2001, some 18 years after the decrees in W-3979 and W-3980. That decree reflects the evolution, and increased complexity, of change of water rights decrees. That complexity is primarily reflected in the more complex methodology for quantification of recharge contained in the decree. Like Cases No. W-3979 and W-3980, the decree in Case No. 96CW45 grants 95% credit for ditch seepage loss and 40% recharge credit for flood or furrow irrigation. It limits return flow from sprinkler irrigation to 20%. See Decree 96CW45 at ¶¶ 27, 28. The decree confirms the Prairie Ditch Company's historical practice of recharging the Unconfined Aquifer for irrigation purposes, and provides that the Company's shareholders are entitled to fully consume the water so recharged, including by successive use, all for the purpose of providing a water supply for irrigation. Decree, Case No. 96CW45 at ¶ 21.

122. The decree in Case No. 96CW46 for the San Luis Valley Canal was entered on November 4, 2002. That decree is similar to the decree for the Prairie Ditch in Case No. 96CW45. The decree in 96CW46 contains substantially the same standards for quantification of recharge as those for the Prairie Ditch, modified to reflect the particular location of the lands served by the San Luis Valley Canal. See Decree 96CW46 at ¶¶ 27-28. The decree confirms the San Luis Valley Canal Company's irrigation practice of recharging the Unconfined Aquifer of the Closed Basin with water diverted by the Company for irrigation purposes. It also confirms the right of the Company's shareholders to use and fully consume by first use and successive use all water recharged into the Unconfined Aquifer of the Closed Basin and to use the same to supply irrigation water to the lands served by the Company. Decree 96CW46 at ¶ 21.

123. The decrees in both Cases No. 96CW45 and 96CW46 contemplate the installation of certain measuring devices to be used to assist in quantifying recharge. The decrees state that in the event it is necessary to allocate recharge to specific wells for purposes of compliance with groundwater regulations, more exacting quantification will be required as will subsequent court proceedings in aid thereof. See Decree 96CW45, at ¶ 2, 22; Decree 96CW46, at ¶¶ 2, 22. The Plan of Water Management does not require the allocation of specified quantities of recharge to specific wells, *testimony of Mike Sullivan* (Oct. 7, 2009), so the more exacting accounting procedures of those decrees do not yet apply. The Deputy State Engineer Mike Sullivan, however, testified that recharge credit would not be allowed until certain appropriate measuring devices are installed. *Testimony of Mike Sullivan* (Oct. 7, 2009).

3. Rio Grande Water Users Association's Winter Recharge Decree, Case No. 79CW91

124. In Case No. 79CW91, the Rio Grande Water Users Association, representing the Rio Grande mainstem appropriators, sought confirmation of their right to make diversions during November and December each year, recognizing that such diversions are subordinate to the obligation of the State of Colorado under the Rio

Grande Compact, § 37-66-101, C.R.S. (2009). Diversions under the decree are made for the purpose of maintaining and replenishing the appropriators' supply of water for irrigation. The water diverted is used to recharge the aquifers and thereby to maintain and replenish the water table underlying Applicant's members' lands, and a portion is subsequently extracted and applied to its ultimate beneficial use for irrigation of crops. The application sought credit for that portion of the waters diverted pursuant to the absolute and conditional rights, that can be shown to be recharged to the aquifers, against any curtailment which may be imposed on use of the groundwater underlying Applicant's members' lands; the amount of such credit, however, was to be the subject of further proceedings in the event of promulgation of further rules and regulations for the use of groundwater in Water Division No. 3.

125. The originally decreed points of diversion for this winter recharge included the Rio Grande Canal, the Monte Vista Canal, the Farmers Union Canal, the Empire Canal, the Prairie Ditch, and the Centennial Ditch. In Case No. 01CW20 (judicially noticed in this proceeding) the San Luis Valley Canal and the Excelsior Ditch were added as points of diversion for this winter recharge water right. Each of the points of diversion is an alternate point of diversion for the exercise of the absolute and conditional rights.

126. The decree grants an absolute water right in the amount of 509 c.f.s. and a conditional right in the amount of 3,294.04 c.f.s., both with an appropriation date of November 1, 1959. The decree confirms the absolute water right of 509 c.f.s. for the beneficial uses of maintaining and replenishing the Applicant's members' supply of water through the recharge of underground aquifers and the storage of water in underground aquifers by other than natural means, pursuant to sections 37-92-103(4), (10.5), C.R.S. (2009), and for subsequent extraction of a portion of the waters diverted and their application for irrigation purposes. On July 7, 2009, in Case No. 08CW25 this Court entered a finding of reasonable diligence in the development of the remaining conditional water right and extending the conditional decree for an additional six years.

127. The decree further provides that the Applicant and/or its members shall be entitled to credit the waters diverted pursuant to the absolute and conditional water rights against any curtailment that may be imposed on the use of groundwater underlying Applicant's members' lands as a result of the promulgation and enforcement of rules and regulations for the use of groundwater in water Division No. 3.

4. Quantification of Fully Consumable Water under the Recharge Decrees and Winter Recharge Decree

128. It is one thing to recognize that there are stream depletions as a result of groundwater withdrawals by large numbers of irrigation wells. It is another thing to try and quantify these injurious depletions. The February 2009 Order required that any Amended Plan should include a detailed description of the information the Subdistrict will collect and the procedure it will follow each year to calculate estimated injurious depletions to senior surface rights using the RGDSS groundwater model. February

2009 Order, Pg. 71. The Amended Plan calculates stream depletions caused by Subdistrict Wells based upon the depletions resulting from the net consumptive use of groundwater by those wells. The net consumptive use of groundwater is determined in a two-step process. First, the RGDSS groundwater model is used to estimate total groundwater consumption as the product of total pumping minus the return flows to the aquifer from that pumping. See Exhibit 95; Exhibit 99, Attachment 1, Exhibit B. The estimated total groundwater consumption was then reduced by the amount of fully consumable water imported under the recharge decrees, including the winter recharge decree described in the previous section of this order. Exhibit 99, Attachment 1, Exhibit B. The result is the net consumptive use of groundwater by the Subdistrict Wells.

129. The amount of water that was diverted under the recharge decrees, including the winter recharge decree, and available to be fully consumed by Subdistrict wells was determined by Supporters' expert witness Allen Davey. The procedure for and results of this calculation are shown in Exhibits 88 and 89. The Objectors challenged the method of quantification of recharge under the decree in W-3979 and by implication the same procedure under the decree in W-3980. The Objectors rely upon the formula in each decree, and specifically the formula from paragraph No. 71 of the decree in W-3979 quoted above, to argue that recharge is limited to ditch seepage and 40% of farm headgate deliveries.

130. The Objectors did not present evidence to challenge the quantification of the fully consumable water under the decrees in Cases No. 79CW91, 96CW45 or 96CW46 and did not dispute that the water imported into the Closed Basin under all of these recharge decrees may be fully consumed, either by first use or successive use. They argue however that the recharge must be computed in accordance with the specific provisions of each decree and the requirements of each decree must be satisfied before the imported water can be used to offset groundwater consumptive use.

131. In determining the amount of water imported into the Closed Basin that could be fully consumed under the decree in Case No. W-3979, Mr. Davey first excluded all reservoir diversions into the Rio Grande Canal and all "special" water decreed to the Canal that was not changed in Case No. W-3979. *Id.* Mr. Davey then followed the procedures in the formula contained in paragraph No. 71 of the decree to determine the allocation of the imported water between the Confined and Unconfined Aquifers and losses incurred in the delivery of that water to the farm headgates. *Id.* Mr. Davey ended his analysis at the farm headgate and assumed that all water delivered to the farm headgates was fully consumable, either by first use for irrigation or by recharge, and by successive use of return flows. See *Testimony of Allen Davey* (Sept. 30, 2009); Exhibits 88 and 89.

132. As set forth in Exhibit 88, Mr. Davey applied a similar analysis to compute the farm headgate deliveries of fully consumable water for the decrees in Cases No.

W-3980, 96CW45 and 96CW46. In doing so, he took into consideration the factors limiting the amount of diversions by each ditch that is available to be fully consumed, either by first use or successive use.

133. Mr. Davey's analysis of fully consumable water at the farm headgate under the recharge decrees is reasonable given the current state of our knowledge and the express language of the decrees. For example the formula in paragraph No. 71 of W-3979 allows the determination of losses to the water after its diversion from the river headgate and before its delivery to the farm headgate. The formula further assumes that 60% of the water delivered to the farm headgate is consumed by first use for surface irrigation, and that 40% of the water applied for surface irrigation returns to the aquifer where it is available for successive use by the shareholder. The decree also permits a subsequent showing that the amount of recharge to the aquifers has changed and that the factors for calculating the recharge should be correspondingly changed. Thus, regardless of the split between consumption in the first use and consumption by successive use, Mr. Davey properly assumed that 100% of the water delivered to the farm headgate may be fully consumed.

134. In the RGDSS groundwater model, lands supplied only by surface water are assumed to apply their pro rata share of surface water to meet irrigation water requirements to the extent of their supply. Flood irrigated lands with a groundwater supply are also assumed to apply their pro rata share of surface water to meet irrigation water requirements, and then to pump groundwater to meet any remaining irrigation requirement, limited by the acreage-prorated permitted or decreed pumping capacity of the wells. The 40% return flow, minus incidental losses, is treated as recharge. This is consistent with the recharge decrees.

135. The prorated share of surface water attributable to lands served by sprinklers is assumed to be entirely recharged. Groundwater is pumped to meet the irrigation water requirements for those lands assuming 80% irrigation efficiency and 3% spray loss, limited by the acreage-prorated pumping capacity determined from the well permits or decrees. See Exhibit 95. This procedure varies from the recharge decree's methodology in Cases No. W-3979 and W-3980, by assuming all of the water is recharged then pumped. It also varies from the methodology of the recharge decrees in 96CW45 and 96CW46 in that it assumes 17% return flow from sprinklers as opposed to the 20% set forth in those decrees.

136. The RGDSS groundwater model's method for allocation of water between surface flood irrigated lands and sprinkler irrigated lands does not follow the procedure used in the recharge decrees to the extent that the RGDSS determined that the decrees actually overstated the amount of water that may be fully consumed under those decrees. The effect of the methodology employed in the RGDSS groundwater model is to reduce the amount of recharge credit that could otherwise be available from sprinkler irrigation. The decrees in W-3979 and W-3980 appear to allow a return flow credit of 40% for surface irrigation, including surface irrigation by sprinklers, while the

RGDSS groundwater limits this return flow to 17%. If the surface water was applied through sprinklers, those decrees would allow 40% return flow as opposed to 17% return flow allowed under the RGDSS groundwater model. The decrees in 96CW45 and 96CW46 allow 20% return flow from sprinkler irrigation and the RGDSS groundwater model limits this to 17%. Therefore, the Court concludes that the methodology employed by the Supporters to determine the net consumptive use of groundwater by Subdistrict Wells for use in determining the resulting depletions to surface streams does not overstate the allowable consumption of the imported water and is a reasonable assumption for purposes of estimating potentially injurious stream depletions. The RGDSS methodology honors the decrees but more accurately reflects the actual conditions and thus more accurately contributes to the calculation of the injurious depletions which must be replaced.

137. The Objectors argue that the RGDSS groundwater model's methodology over-estimates the amount of imported water available to offset well pumping under the recharge decrees. Deputy State Engineer Mike Sullivan testified, however, that he made a separate analysis of this issue and concluded that the manner in which the RGDSS groundwater model uses the fully consumable water, as calculated by Mr. Davey, does not result in overstating the consumption of fully consumable water permitted, by either first use or successive use, under the recharge decrees. Mr. Sullivan testified that the sum of the recharge calculated under the formulae of the recharge decrees and the fully consumable water available by first use or successive use matches fairly closely with Mr. Davey's analysis and therefore does not overstate the consumption of such water allowed under the recharge decrees. *Testimony of Mike Sullivan* (Oct. 7, 2009).

138. The quantification of fully consumable water under the winter recharge decree simply applied 5% loss to all diversions that enter the Closed Basin, as defined in the respective recharge decrees and appropriately assumed that the rest was ditch loss since it was diverted for recharge during the non-irrigation season.

139. Based on the evidence in the record, the Court finds that the methodology used by the Supporters to determine the amount of imported water that may be fully consumed under the recharge decrees, for purposes of determining net consumptive use of groundwater, did not overstate the amount of water available for full consumption under those decrees. Rather, the evidence shows it to be the most accurate calculation currently available for this purpose.

140. The evidence in this case is clear that a substantial portion of the groundwater supply in the Unconfined Aquifer within the Subdistrict is the direct result of the filling of that aquifer by water diverted from the Rio Grande into the Closed Basin. The recharge decrees recognize that this is imported water that may be used and reused to extinction. The recharge decrees confirm the historical practice of recharging this water to provide an irrigation water supply for the shareholder in the ditch company or landowners in the irrigation district. Because this water is new to the Closed Basin, is fully consumable, and has been adequately quantified, the Court finds

that it may be lawfully withdrawn from storage in the aquifers and used by the Subdistrict Wells served by the ditches with recharge decrees.

5. Use of Fully Consumable Water in Determining Stream Depletions

141. In the RGDSS groundwater model, crop consumptive use is calculated by the State of Colorado's Consumptive Use Model (StateCU)³ preprocessor using historical irrigated acreage and crop type information to determine how surface water and groundwater would be applied and consumed. Exhibit 95. These calculations are done on a ditch service area basis. See Exhibit 9 (reproduced in February 2009 Order at page 12, showing ditch service areas in the Subdistrict). For example, Table 1B of Exhibit 95 shows the calculation of net groundwater consumptive use for the Farmers Union Canal for the period 1970-2005. A portion of that table is shown below:

TABLE 1 B: FARMERS UNION CANAL (200631)						
Year	Imported Water Offsets (acre-feet)	Surface Water Consumptive Use in StateCU (acre-feet)	Groundwater Consumptive Use of Imported Water Offsets (2)-(3) (acre-feet)	Groundwater Consumptive Use in StateCU (acre-feet)	Excess Groundwater Consumptive Use (4)-(5) (acre-feet)	Groundwater Consumptive Use Ratio (4)/(5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970	24539	24365	174	37662	37488	0.005
1971	9156	16936	0	34574	34574	0.000
1972	11406	8949	2457	48933	46476	0.050
1973	55840	27133	28707	31994	3287	0.897
1974	3828	9033	0	52860	52860	0.000
1975	55838	24386	31452	38556	7104	0.816
1976	31803	11929	19874	47324	27450	.0420
(omitted rows)						
1970-2005 Average	30670	5118	25913	62395	36482	0.430

142. The year is in Column 1, and Column 2 contains the annual amount of fully consumable water calculated by Mr. Davey using the decree in Case No. W-3980. This calculation excludes all reservoir water diverted by the Farmers Union Canal because that water right was not included in the recharge decree. See Exhibit 88. Column 3 is the amount of the crop consumptive use met by surface flood irrigation with imported water. Column 4 is the amount of fully consumable surface water (after losses) remaining after surface flood irrigation that is available to offset groundwater consumptive use. Column 5 is the amount of crop consumptive use met by groundwater on the lands served by the Farmers Union Canal. StateCU determines this quantity using the assumption that all lands with a groundwater supply will pump

³ ftp://dwrftp.state.co.us/cdss/csu/in/StateCU_UsersManual_20081020.pdf

enough groundwater to meet the full irrigation requirement of the crop. Thus, Column 5 is the estimated total consumptive use of groundwater on lands under the Farmers Union Canal. Column 6 is the net consumptive use of groundwater under the Farmers Union Canal for each year, i.e., that amount by which groundwater consumptive use exceeded the fully consumable water remaining after surface flood irrigation.

143. The next step in this process is to divide Column 4 (fully consumable surface water remaining after surface irrigation) by Column 5 (groundwater consumptive use) to derive the ratio in Column 7. That year's ratio is used in the "impact run" of the model (see ¶¶ 159-161 below) to reduce the same year's historical groundwater consumption to an amount equal to the values for the imported water offset in Column 4. The ratio maintains a correct relationship between total pumping and return flows.

144. This same process is repeated for the years 1970-2005 for the lands served by the Rio Grande Canal, the Farmers Union Canal (San Luis Valley Irrigation District), and the lands of the Prairie Ditch, and the San Luis Valley Canal that are within the Closed Basin. See Exhibit 95, Tables 1B-1D.

145. For lands within the Subdistrict that are served by ditches without a recharge decree, such as the Billings Ditch, and for lands without surface water, the total groundwater consumptive use is not reduced by any amount for fully consumable water imported into the Closed Basin when determining stream depletions by Subdistrict Wells. See *Testimony of Willem Schreüder* (Oct. 1, 2009); *Testimony of Allen Davey* (Sept. 30, 2009).

146. This procedure is consistent with and corresponds to the structure of the RGDSS groundwater model, which distributes the water diverted by each ditch with a recharge decree,⁴ after ditch seepage loss, pro rata to the irrigated lands served by the ditch. In the RGDSS, groundwater flood irrigation is assumed to have an irrigation efficiency of 60%, and a return flow of 40%.⁵ The RGDSS groundwater model assumes that sprinkler irrigation has a spray loss of 3%, an irrigation efficiency of 80%, and a return flow of 17%.⁶ The values used by the RGDSS groundwater model were undisputed and are reasonable and reliable for determination of irrigation efficiency, spray loss, and return flow. See Exhibit 87, Opinion No. 9.

147. As described in the previous section, a substantial portion of the groundwater supply in the Unconfined Aquifer within the Subdistrict is the direct result of the filling of that aquifer by water diverted from the Rio Grande into the Closed Basin. The recharge decrees recognize that this is imported water that may be used and reused to extinction. The recharge decrees confirm the historical practice of

⁴ The same allocation method is used for ditches without recharge decrees, but no credit is given for the resulting recharge.

⁵ The decrees in W-3979 and W-3980 assume that surface water applied by either flood irrigation or sprinkler irrigation has a 60% consumptive use and 40% return flow.

⁶ The decree in 96CW45 and 96CW46 assume that sprinkler irrigation has a 20% return flow.

recharging this water to provide an irrigation water supply for the shareholder in the ditch company or landowners in the irrigation district. Because this water is new to the Closed Basin, is fully consumable, and has been adequately quantified, the Court finds that it may be lawfully withdrawn from storage in the aquifers and used by the Subdistrict Wells served by the ditches with recharge decrees.

148. The consumption of that fully reusable water is appropriately accounted for by the RGDSS groundwater model, and the diversion and use of water lawfully stored in the aquifers under these decrees is not an out-of-priority diversion by the Subdistrict Wells. Thus, the subtraction of the consumptive use of this fully consumable groundwater from the total consumptive use of groundwater by Subdistrict Wells is appropriate. The resulting net groundwater consumptive use represents the diversions by the Subdistrict Wells that may result in injurious stream depletions that must be replaced.

149. For purposes of determining stream depletions from wells, the RGDSS groundwater model “credits” each ditch’s fully consumable imported water pro rata over the historically irrigated land served by that ditch. When used to predict stream impacts from Subdistrict Wells, the RGDSS groundwater model only uses the fully consumable imported water to offset groundwater consumptive use by wells that (a) supply the historically irrigated lands served by the individual ditch, (b) are within the Closed Basin, and (c) are both within that ditch’s service area and within the boundaries of the Subdistrict.

150. For example, the Rio Grande Canal serves lands both within and outside of the Subdistrict. The fully consumable imported water used for the irrigation of lands served by the Rio Grande Canal in the Closed Basin and outside of the Subdistrict is not included in the fully consumable imported water for the Rio Grande Canal lands within the Subdistrict. Only the fully consumable imported water derived from the use of that water on Rio Grande Canal lands within the Subdistrict, including ditch loss, is used to offset groundwater consumptive use by wells used to irrigate Rio Grande Canal lands within the Subdistrict. *See Testimony of Willem Schreüder* (Oct. 1, 2009).

6. Calculation of Stream Depletions by Subdistrict Wells Using Response Functions for Annual Plan of Operation

a. Derivation of Response Functions

151. The RGDSS groundwater model is a large and complex model that requires powerful computers to operate. To properly set up and run the model requires the time of highly experienced experts and requires a substantial investment of resources. In addition, because the model is a basin-scale model, its results are currently most accurate and reliable when it is used to simulate extended time periods. *Testimony of James Slattery* (Oct. 5, 2009); *Testimony of Willem Schreüder* (Oct. 1, 2009); *Testimony of Chuck Brendecke* (Oct. 6, 2009).

152. Due to these limitations, the modeling experts opined that the current RGDSS groundwater model should not be used to make predictions of stream depletions on monthly time steps. Based upon the recommendations of the modeling experts, the Amended Plan proposes to use response functions derived from long-term simulations by the RGDSS groundwater model to estimate monthly stream depletions from the operation of Subdistrict Wells. Response functions are a simplified form of the output from the RGDSS groundwater model and can be used to calculate monthly stream depletions from the net consumptive use of groundwater by Subdistrict Wells without the need to make frequent runs of the RGDSS groundwater model.

153. The use of response functions for this purpose is a common engineering technique and one that has been accepted as scientifically valid and reliable by experts in water resources engineering for purposes of determining the timing of depletions to surface streams caused by well pumping. See Exhibits 94, 95, 99, 102, 104, and 107.

154. Response functions are used in a variety of contexts in Colorado, including for the determination of stream depletions in the State Engineer's groundwater regulation in Water Division No. 2. The response functions here differ from those used in Water Division No. 2 in that they are not "unit response functions." Unit response functions assume that all of the consumptive use from well pumping eventually depletes stream flows. That assumption does not apply in much of the San Luis Valley, including Subdistrict No. 1, due to the non-linear response of the groundwater system.

155. The use of calibrated response functions in this case, in the manner described below, is a scientifically valid and reliable way to predict stream depletions from the consumptive use of groundwater because the calibration of the response functions takes into account the non-linearity of the system. See Exhibit 99.

156. In Exhibit 116, below, Mr. Slattery presents an illustration of how response functions are used to calculate stream depletions for a circumstance with linear relationship between net groundwater consumptive use and depletions. While the circumstance in the Rio Grande Basin is non-linear and thus very much more complicated and requiring calibration of the response functions as discussed elsewhere, the illustration does show the general mechanism for predicting depletions based upon response functions.

Example Response Function Calculations

Table 1	
	Stream Depletion as a Percentage of the Net GW Consumptive Use
Month	
1	50%
2	30%
3	20%

Table 2						
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Net GW Consumptive Use	40	60	100	120	90	60

Table 3						
Total Stream Depletion	Lagged Stream Depletion					
	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
Month 1	20					
Month 2	42	12	30			
Month 3	76	8	18	50		
Month 4	102		12	30	60	
Month 5	101			20	36	45
Month 6	81				24	27
Month 7	36					18
Month 8	12					12

Illustrative Exhibit 07CW52.tbl, Resp, 10/5/2009

157. The response functions predict what percentage of the groundwater consumptive use caused by well pumping will deplete the surface streams in the year in which the pumping occurred and all years thereafter. This process is repeated for each year, and the current year's stream depletions are added to the then-occurring stream depletions resulting from prior pumping. The sum of these quantities is reported in monthly amounts and represents the cumulative depletions from groundwater consumption caused by well pumping.

158. As Exhibit 95 explains, the computation of response functions for Subdistrict No. 1 involves making a set of paired model simulations using the RGDSS groundwater model.

159. The response functions proposed by the Supporters were derived by making comparisons between two different RGDSS groundwater model runs. The first run is the so-called "historical run," which simulates the operation of the hydrologic system, including the stream-aquifer interaction, over the period 1970 through 2005. The second run makes changes to the historical condition and is referred to as the "impact run" because the simulation is intended to quantify the impact of some change to the historical condition. The difference in predicted stream gains and losses, calculated by subtracting the impact run from the historical run, is the quantification of the impact of the differences in the RGDSS groundwater model inputs between the two

runs. See Exhibits 95, 99. The critical input to the RGDSS groundwater model is the difference between consumption due to well pumping and the imported water offset.

160. The impact run for Subdistrict No. 1 was a simulation where the inputs to the model were changed to reflect that the amount of groundwater inside Subdistrict No. 1 consumptively used under each ditch system with a recharge decree is equal to the fully consumable imported water for that ditch system.

161. For example, in Exhibit 95, table 1B discussed above at page 44, the amount of annual pumping under the Farmers Union Canal would be set as equal to the values in Column 4, distributed monthly. In the impact run the amount of pumping for lands within Subdistrict No. 1 without surface water, and lands served by ditches without recharge decrees, is set to zero. The comparison of the stream-aquifer interaction between the impact run and the historical run reflects the changes in the stream flows that result from the changes in the model inputs. See Exhibit 95. The difference is the stream depletions caused by the groundwater consumptive use by Subdistrict Wells that is not offset by fully consumable imported water.

162. Hydrologic and climatic conditions vary from year to year. As a result, the amount of groundwater use and the amount and location of recharge of fully consumable imported water varies from year to year. In addition, cropping patterns may change, resulting in a change in crop consumptive use. The RGDSS groundwater model considers and calculates the effects of these changes. And because groundwater use changes from year to year, so will the stream depletions resulting from that use.

163. To assess how stream depletions from the net consumptive use of groundwater by Subdistrict Wells change from year to year, the Subdistrict prepared separate response functions for each year 1988 through 2005. For each year the Subdistrict made a set of paired 100-year runs. The historical run was based upon the historical conditions for the year being simulated and the remaining 99 years were based on average monthly conditions. For the impact run, the net groundwater consumptive use for each ditch system with a recharge decree in the Subdistrict was set as equal to the portion of fully consumable imported water for that ditch system's land within the Subdistrict for the year being simulated. The average monthly simulations were used to ensure that the predicted stream depletions were not dependent upon an exact sequence of hydrologic conditions. This adjustment is appropriate because when response functions are used to calculate stream depletions it is unlikely that the historical conditions will recur in the same sequence. See Exhibit 95, 99.

164. Paired runs of this type were made using the RGDSS groundwater model's monthly time step for each year from 1988 through 2005, a total of 18 paired runs. The output from each of the paired runs was compared to determine the lagged stream depletion from the net groundwater consumptive use. The "raw" or "uncalibrated" response functions that result from comparison of the paired runs

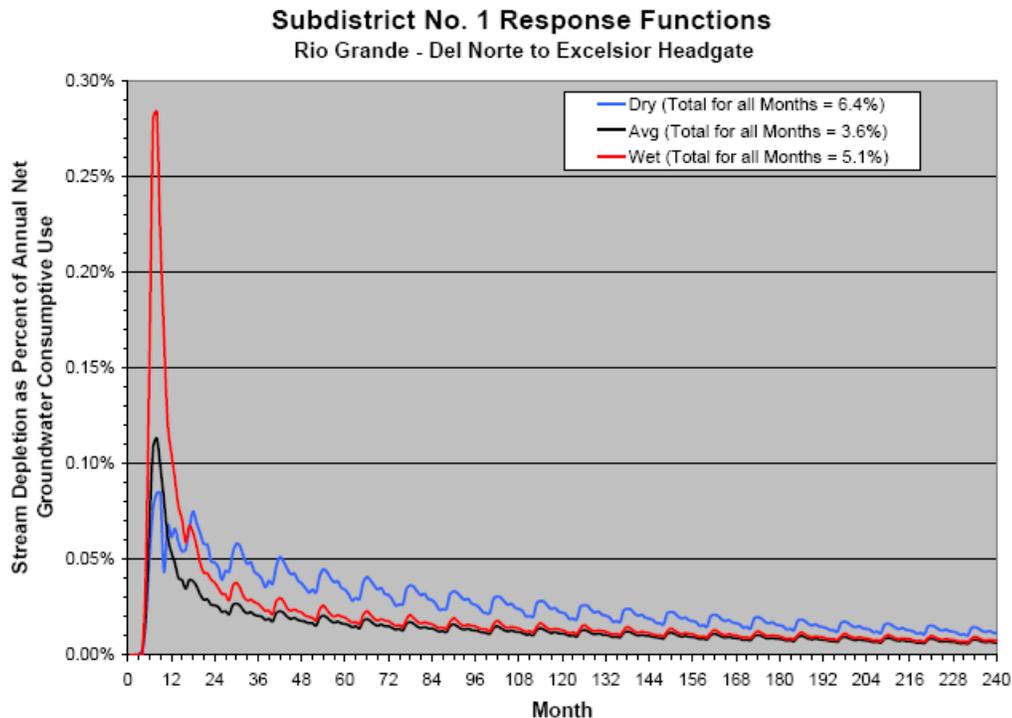
represent the pattern of the monthly stream depletions derived from the paired runs. See Exhibit 101. The “raw” response functions were then analyzed for all streams on which the computed annual depletion was greater than 0.05% of the modeled Subdistrict net groundwater consumptive use. 0.05% was selected because it is the smallest quantity of the modeled stress that the RGDSS groundwater model can accurately predict. Below that point, the modeling experts have no confidence in the accuracy of the resulting calculation and, in fact, expressed the opinion that 0.05% is the bottom of the range that they would consider to be reliable. *Testimony of Willem Schreüder* (Oct. 1, 2009; Oct. 2, 2009). The results showed that the impact to the Rio Grande, including the Norton Drain, La Jara Creek, the Conejos River, including McIntyre Springs and the Rio San Antonio, all had annual depletions of 0.05% (50 acre-feet annually, 31 g.p.m.) or more of the modeled stress. See Exhibit 95, Tables 2 and 3.

165. The “raw” response functions for these streams were then evaluated to determine whether they varied in response to different hydrologic conditions. Three different stream reaches analyzed were the Rio Grande: from the Del Norte gaging station downstream to the headgate of the Excelsior Ditch just west of Alamosa; from the Excelsior Ditch headgate to the Chicago Ditch headgate, several miles downstream from Alamosa; and from the Chicago Ditch downstream to the Rio Grande Compact gaging station at Lobatos, near the Colorado-New Mexico Stateline. These stream reaches on the Rio Grande were analyzed separately because at certain times the Excelsior Ditch and/or the Chicago Ditch may be diverting all of the available flow in the river, and at such times replacement water may need to be delivered to the stream below the respective headgates to prevent injury. Thus, it is necessary to know the amount of depletions to those stream reaches.

166. One of the Supporters’ experts, Mr. James Slattery, analyzed the raw response functions to determine if the lagged depletions computed by the RGDSS groundwater model varied depending upon hydrologic conditions. Mr. Slattery’s analysis is shown in Exhibit 100, and based upon that analysis he concluded that the response functions did vary depending upon whether the hydrologic conditions were wet, average, or dry. Mr. Slattery concluded that in wet years, such as 1993, 1995 and 1997, the response functions showed one distinct lagging pattern; that in the extremely dry years of 2000, 2002 (the driest year of record) and 2003 the response function had a different distinct lagging pattern; and that average years such as 1988-1992, 1994, 1996, 1998, 2001, 2004 and 2005 had a third distinct lagging pattern. While the board of managers describes four sets of hydrologic conditions to pair with response functions in the Amended Plan, Mr. Slattery’s un rebutted opinion is that the data do not justify separate response functions to differentiate between dry and very dry years.

167. Supporters’ Exhibit 118 is an illustrative example of the different response functions for wet, average and dry conditions resulting from Mr. Slattery’s analysis. It shows the monthly stream depletions as a percentage annual net groundwater consumptive use for 20 years. Under Mr. Slattery’s analysis a wet year is any year in

which the net consumptive use of groundwater by Subdistrict Wells is 80,000 acre-feet or less; an average year is any year in which the net groundwater consumptive use is between 80,000 and 220,000 acre-feet; and a dry year is a year in which the net groundwater consumptive use is greater than 220,000 acre-feet.



Illustrative Exhibits 07CW52.xls, Chart1, 10/5/2009

168. In order for the “raw” response functions to predict stream depletions accurately, they need to be calibrated to the RGDSS groundwater model’s prediction of stream depletions due to the non-linearity of the groundwater system in the San Luis Valley. The relationship between the amount of groundwater consumption and the amount of stream depletions is such that not all of the consumptive use of groundwater results in an equal amount of depletions to stream flow.

169. There are various factors that introduce non-linearity into the San Luis Valley’s groundwater system including: flowing wells, changes in storage, changes in Stateline flow, and changes in evapotranspiration from subirrigation and native vegetation.

170. The scientific basis for the RGDSS groundwater model’s simulation of evapotranspiration from groundwater is discussed in paragraphs 240-250 of this Court’s decree in Case No. 04CW24. The RGDSS groundwater model is capable of integrating the effects of this non-linear behavior in its calculation of stream depletions. The response functions, being based upon a single year’s pumping stress, do not fully integrate the non-linear effects and therefore must be calibrated to accurately predict

the stream depletions as determined by the RGDSS groundwater model. See Exhibit 102, figure 1.

171. Mr. Slattery developed response functions for wet, average and dry years for each of the three stream segments of the Rio Grande impacted by the Subdistrict wells, three such response functions for La Jara Creek, and three such response functions for the Conejos River, including McIntyre Springs and the Rio San Antonio. The predictive ability of these 15 response functions was then evaluated by comparing the annual stream depletions predicted by the response functions to the annual stream depletions predicted by the RGDSS groundwater model.

172. In order to evaluate the accuracy and reliability of the response functions, and to estimate stream depletions, an RGDSS groundwater model simulation was performed using paired runs in a manner similar to those described above for determination of the response functions. The paired runs consisted of the historical simulation from 1970 to 2005 and an impact simulation in which Subdistrict net groundwater consumptive use was set as equal to the fully consumable water, as described above, for the years 1970 to 2005. By subtracting the impact run output from the historical run's output, the cumulative stream depletion from net groundwater consumptive use in the Subdistrict can be estimated and compared to the prediction made by the response functions. See Exhibit 99.

173. Based on his analysis, Mr. Slattery determined that the response functions most accurately matched the RGDSS groundwater model's predicted stream depletions by use of 20-year lagging of depletions and a calibration or scaling factor of 0.85 percent for dry years, 0.88 percent for average years, and 1.15 percent for wet years. The scaling factor means that the response curve generated from the output of the RGDSS groundwater model is multiplied times the scaling factor to adjust the response curve values for use in estimating stream depletions for average, wet and dry years.

174. The 20-year lagging factor was determined by comparison of the RGDSS groundwater model's prediction of stream depletions for the period 1970 through 2005 and the predicted stream depletions for the periods 1988 through 2005. The stream depletions predicted for 2005 in both of these model runs were essentially the same, indicating that the lag time between when pumping occurred and when the full depletive effects of that pumping impacts the surface streams is approximately 18 to 20 years. See *generally Testimony of James Slattery* (Oct. 5, 2009).

175. Mr. Slattery then confirmed the predictive ability of the response functions using various analytic and statistical techniques. Mr. Slattery's un rebutted opinion is that the use of the calibrated response functions will accurately replicate the stream depletions predicted by the RGDSS groundwater model for the stresses and under the assumption made in the underlying model runs. The Plan of Water Management calls for the response function to be reviewed at least after three, six and ten years, and every five years thereafter. Mr. Slattery testified that this is appropriate. Both Mr.

Slattery and Dr. Schreüder, however, cautioned that if conditions changed materially from those assumed in the underlying simulations, then it will be appropriate to generate new response functions for the changed conditions. The inclusion or exclusion in the Plan of wells by contract, the following of additional land or changes in what land is going to be fallowed are examples of events that could require new response functions to be calculated. The engineers should make this determination applying sound engineering judgment.

176. To facilitate the use of the response functions to determine stream depletions from Subdistrict Wells, Mr. Slattery constructed a response function tool that is Supporters' Exhibit 101. This tool consists of an automated Excel spreadsheet that allows the user to input the annual stream flow of the Rio Grande at Del Norte and the Net Consumptive Use of Groundwater by the Subdistrict wells for each year. The spreadsheet then automatically calculates the resulting stream depletions through 2040, including the lagged effect of pumping in prior years.

7. Stream Depletions from Subdistrict Wells Predicted by Use of Response Functions.

177. The *Modified Case Management Order* entered in these cases on June 22, 2009 required:

3.b. By June 22, 2009, the Supporters will provide to the Objectors and to the Court the results and the underlying documentation, including all assumptions, estimates and other criteria, described in paragraph 3.a above, for RGDSS Groundwater Model runs and related analyses used to:

- i. determine monthly depletions to the Rio Grande and its tributaries commencing January 2009 and continuing to the month and year in which the depletions to the affected stream are less than fifty (50) acre feet per month resulting from historical well pumping within the territory now comprising the Subdistrict territory, and
- ii. determine monthly depletions to the Rio Grande and its tributaries commencing January 2010 and continuing to the month and year in which the depletions to the affected stream are less than fifty (50) acre feet per month resulting from estimated well pumping within the territory now comprising the Subdistrict territory from 2010 forward.

Dr. Schreüder performed a set of paired runs of the RGDSS groundwater model for the period 1970 through 2005 to estimate stream depletions from the net groundwater consumptive use by Subdistrict Wells. Table 2 of Exhibit 95 shows the computed stream depletions resulting from the net groundwater consumptive use by Subdistrict Wells as an annual average for the years of this 1996-2005. Using 0.05% (50 acre-feet) of the modeled stresses as the lower limit of accuracy of the RGDSS groundwater

model, the table shows that impacts of 0.05% or greater occur on the Rio Grande, the Conejos River, and La Jara Creek. The Norton Drain contributes flow to the Rio Grande and therefore was included in the depletions to the Rio Grande. The depletions to the Conejos River, McIntyre Springs, and Rio San Antonio were combined because they all reduce stream flow on the Conejos River.

Table 2: Subdistrict #1 Computed Stream Depletions	
Stream	Average Depletions 1996-2005 (af)
Rio Grande	5599
LaJara Creek	136
McIntyre Spring	108
Werner Arroyo	48
Alamosa River	44
Conejos River	41
Saguache Creek	36
Norton Drain	24
San Luis Creek	21
Rio San Antonio	11
Sand Creek	10
Trinchera Creek	7
Deadman Creek	7
Big Spring Creek	5
Rito Alto	2
Little Spring Creek	1
Crestone Creek	1
Willow Creek	0
SanIsabel Creek	0
Cottonwood Creek	0
SangreDeCristo Creek	0
Culebra Creek	0
Kerber Creek	0
Spanish Creek	0
Cotton Creek	0
Zapata Creek	0
Costilla Creek	0
WildCherry Creek	0
Major Creek	0
Ute Creek	0
Medano Creek	0
Carnero Creek	0
Garner Creek	0
LaGarita Creek	0

178. Mr. Slattery also prepared an analysis in accordance with these provisions of the *Modified Case Management Order* using the response functions described above, and the results are shown in Exhibits 99 and 101. To determine monthly depletions to the Rio Grande and its tributaries commencing January 2010 and continuing to the month and year in which the depletions to the affected stream are less than fifty (50) acre feet per month resulting from Subdistrict Well pumping from 2010 forward, it was necessary for Mr. Slattery to make some assumptions about future net groundwater consumptive use under the Amended Plan. For the purpose of this analysis he assumed that net groundwater consumptive use would be equal to the long-term average in 2010 and 2011, and thereafter would decline at the rate of 10,000 acre-feet per year for eight consecutive years to reflect the retirement of 5,000 acres of irrigated land in the Subdistrict annually. Thereafter, the net groundwater consumptive use was assumed to average 22,000 acre-feet per year. Using these assumptions, Mr. Slattery's computations show the stream depletions from the operation of Subdistrict Wells reaching a peak of 2,798 acre-feet annually (233 acre-feet per month) in 2015 and thereafter declining to a steady rate of 1,426 acre-feet per year (119 acre-feet per month) in 2038. This calculation is shown on Table 2 of Exhibits 99 and 101. The accuracy of these calculations is not disputed, but Mr. Slattery cautioned that he does not know if his assumptions about retirement of irrigated acres will occur at the time and the amount he projected. His projections do show the interrelationship between the desire to fallow land and reduction of the injurious depletions requiring replacement as the plan proceeds over time.

Table 2
Projected Stream Depletions from Future Groundwater Pumping in Sub-District No. 1
(units of ac-ft)

Year	Net Groundwater Consumptive Use	Annual Stream Depletions ^{a)}					Total
		Rio Grande - Del Norte to Excelsior Ditch Headgate	Rio Grande - Excelsior Ditch Chicago Ditch Headgate	Rio Grande - Chicago Ditch Headgate to Stalene	La Jara Creek	Conejos, Rio San Antonio, and McIntyre Springs	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2010	102,000	621	113	9	8	13	764
2011	102,000	1,045	219	22	25	28	1,339
2012	92,000	1,267	291	28	38	38	1,662
2013	82,000	1,404	341	32	48	45	1,869
2014	72,000	2,039	411	29	57	49	2,584
2015	62,000	2,204	442	30	67	55	2,798
2016	52,000	2,172	449	32	72	59	2,784
2017	42,000	2,070	439	32	75	61	2,677
2018	32,000	1,923	417	32	76	62	2,509
2019	22,000	1,739	385	31	74	61	2,289
2020	22,000	1,662	361	29	72	60	2,184
2021	22,000	1,627	344	29	71	59	2,130
2022	22,000	1,605	330	28	70	59	2,092
2023	22,000	1,590	320	27	69	58	2,064
2024	22,000	1,578	311	27	68	58	2,042
2025	22,000	1,569	303	26	67	57	2,023
2026	22,000	1,563	296	26	67	57	2,009
2027	22,000	1,558	291	25	66	57	1,996
2028	22,000	1,553	286	25	65	56	1,986
2029	22,000	1,550	281	25	65	56	1,976
2030	22,000	1,470	264	23	60	52	1,869
2031	22,000	1,394	249	21	56	48	1,768
2032	22,000	1,330	237	20	52	45	1,684
2033	22,000	1,277	226	18	50	42	1,613
2034	22,000	1,226	218	18	47	40	1,548
2035	22,000	1,186	212	17	45	38	1,498
2036	22,000	1,157	208	16	43	37	1,461
2037	22,000	1,138	205	16	43	36	1,438
2038	22,000	1,129	204	16	42	35	1,426
2039	22,000	1,129	204	16	42	35	1,426
2040	22,000	1,129	204	16	42	35	1,426
Avg	36,194	1,481	292	24	56	48	1,901

Explanation of Columns

- (1) Calendar Year
- (2) Amount of Groundwater Consumption in Sub-District No. 1 that is greater than the amount of consumptive use that is offset by the recharge decrees as computed from input to the Groundwater Model for 1970-2005. 2006-2009 values estimated by selecting a year with similar streamflow records for the Del Norte Gage and the corresponding Net Groundwater consumptive Use. (2006=1998, 2007=2001, 2008=2001, and 2009=1998). 2010-2030 estimated using the 1970-2005 average with a decrease of 10,000 ac-ft/yr from 2012-2019 to approximate the effects of removing 5,000 acres/year for 8 years through the CREP program (total of 40,000 acres). 2020-2030 values same as 2019 value.

179. To determine monthly stream depletions to the Rio Grande and its tributaries commencing January 2009 and continuing to the month and year in which the depletions to the affected stream are less than fifty (50) acre feet per month resulting from historical pumping by Subdistrict Wells, Mr. Slattery relied upon his response function tool Exhibit 101. The response function tool contains the stream flows at the Del Norte Compact gaging station from 1970 through 2009.⁷ It also contains the net groundwater consumptive use calculated by the RGDSS groundwater model. Using this information, Mr. Slattery calculates the cumulative stream depletions by stream and stream reach for the period 1970 through 2009.

180. With the response function tool, it is possible to enter zero for net groundwater consumptive use for the period 2010 through 2040. By so doing, the response function tool shows the amount of lagged stream depletions from historical Subdistrict Well's net groundwater consumptive use that has not yet impacted stream flows. The sum of those remaining depletions is 48,933 acre-feet, ranging from a high of 6,030 acre-feet in 2010 and declining to zero in 2029. For purposes of comparison, the cumulative stream flow of the Rio Grande at Del Norte over that same time period would be 12,500,000 acre-feet, so 48,933 acre-feet is 0.4% of that amount, ranging from a high 0.9% in 2010 and declining to 0.001% in 2028.

D. Use of Recharge Decrees in the Calculation of Net Consumptive Use of Groundwater in the Amended Plan

181. Appendix 1 of the Amended Plan provides the procedure to be used by the Subdistrict to remedy stream depletions caused by the net consumptive use of groundwater within the Subdistrict. Paragraph 3.d. of Appendix 1 provides that net groundwater consumption by Subdistrict Wells during the Plan Year will be the total estimated groundwater consumption from Subdistrict Well pumping minus estimated decreed recharge that offsets groundwater consumption. The Acequia Objectors, Richard Ramstetter, and Peter Adkins assert that the water associated with the recharge decrees is the private property of various ditch companies' shareholders and a statutory entitlement of landowners within the San Luis Valley Irrigation District and may not be claimed or used by the Subdistrict. They allege that there are approximately fifty landowners within the Subdistrict that do not own any replacement water or water associated with recharge decrees, and the Subdistrict is attempting to redistribute the private property of the ditch companies' shareholders or a statutory entitlement of landowners within the irrigation district to the fifty landowners and others. They go on to assert that the Subdistrict's attempt to claim private property and redistribute it to other parties violates Colorado law and the United States and Colorado Constitutions. For the reasons stated below, the Court does not need to decide the nature and extent of the property right or statutory entitlements asserted by these Objectors because there is no factual basis for their claims.

⁷ The 2009 data is based on the June 22, 2009 10-day report of the Division Engineer and represents an estimate of anticipated 2009 flows at Del Norte.

182. At trial, the Supporters established that the fully consumable water available under the recharge decrees was used to offset groundwater consumptive use only on the lands served by the individual ditches with a recharge decree, and that the fully consumable water imported by one ditch was not used to offset groundwater consumptive use by Subdistrict Wells either served by a different ditch, or without surface water rights. *Testimony of Allen Davey* (Sept. 30, 2009); *Testimony of Willem Schreüder* (Oct. 1, 2009).

183. Earlier in this Order, the Court made detailed findings concerning the method for allocation and quantification of the fully consumable imported water for each ditch system with a recharge decree, including the fact that it is allocated pro rata over the lands historically served by the ditch company or within the irrigation district. That fully consumable water is used to offset groundwater consumptive use by Subdistrict wells on the lands served by the ditch company or irrigation district. The resulting net groundwater consumptive use is used to determine stream depletions from the use of Subdistrict Wells. By this method of calculating stream depletions the Subdistrict has not asserted a right to the fully consumable imported water or the right to use it as a source of replacement of stream depletions. Rather, its methodology seeks to credit the shareholders in the ditch companies and the landowners in the irrigation district with the benefit of the imported water by offsetting it against the consumptive use of groundwater resulting from those shareholders' and landowners' use of Subdistrict Wells. Thus, the Objectors' claim that the Amended Plan redistributes either the property rights of ditch company shareholders or a statutory entitlement of landowners within an irrigation district to the users of other Subdistrict Wells is incorrect.

184. Likewise, there is no factual basis for the Objectors' claim that the Subdistrict's manner of calculating the net consumptive use of groundwater by Subdistrict Wells on lands served by a ditch with a recharge decree is a deprivation of property without due process. While the Subdistrict has no agreement with the ditch company shareholders or the irrigation district landowners concerning the use of the fully imported water, no agreement is needed because the Subdistrict is not using that water. Rather, its methodology seeks to credit to each such shareholder or irrigation district landowner the benefit of the fully consumable imported water they own or to which they are entitled when determining the net consumptive use of groundwater by their Subdistrict wells. That methodology respects any property rights of the shareholders and any statutory entitlement of landowners in the irrigation district. Accordingly, there has been no divestiture of any property right or statutory entitlement as a result of the manner in which the Subdistrict proposes to determine the net consumptive use of groundwater by Subdistrict Wells.

185. The Objectors also argue that the Amended Plan provides that the approximately fifty landowners will pay a fee to the Subdistrict for the ability to pump their wells and that the depletions to the stream system associated with the well

pumping will be replaced by the imported fully consumable water available under the recharge decrees. Again, there is no factual basis for this claim. Rather, it appears to confuse the distinction between the use of the fully consumable imported water to calculate the depletions to surface streams from the net consumptive use of groundwater, and the financial structure of the Amended Plan whereby an individual Farm or Farm Unit may be entitled to Surface Water Credit (as defined by section I.L of the Amended Plan).

186. As discussed above, the Surface Water Credit represents the amount of surface water brought into the Subdistrict by that Farm or Farm Unit that is not consumed through irrigation practices or other beneficial use and is applied by the Subdistrict to offset the fees that the well owner would otherwise owe as part of the Subdistrict's Annual Fee. See Amended Plan, § IV.A. The financial accounting involved in determining Surface Water Credit is not dependent upon the fully consumable imported water under the recharge decrees. The Amended Plan specifically provides that Surface Water Credit for purposes of calculating the Annual Fee may be "carried over for one year to offset the following year's pumping, either on the Farm or Farm Unit accumulating the Surface Water Credit or via exchange, trade, lease or sale to other well water users within the Subdistrict." Amended Plan, App. 2, at 1. The Amended Plan reduces the fees or assessments that a water user otherwise would pay according to the amount of surface water that is imported for his or her benefit, and not consumptively used, i.e. the Surface Water Credit. Amended Plan, § IV.B.2.b.

187. It is true that a well user with little or no surface water can be receiving a benefit from other water users' Surface Water Credit by exchange, trade, lease or sale; but that well user pays a higher assessment, and the individual water users who have Surface Water Credits receive compensation in the form of reduced payments. See Amended Plan, § III.A., at 11 ("Ultimately, landowners using lower quantities of groundwater and who contribute the most surface water to the Subdistrict will pay the lowest fee, and landowners who pump large quantities of water but who do not have offsetting Surface Water Credits, as calculated by the Subdistrict Board of Managers, from surface water from the Rio Grande or other stream systems will pay the highest fee.").

188. Finally, the Amended Plan defines "Non-Benefitted Subdistrict Land" to include land irrigated with groundwater pursuant to, and in compliance with, the provisions of a validly decreed plan for augmentation. Non-benefitted lands will not be assessed by the Subdistrict or subject to service and user fees. Landowners obtaining plans for augmentation for their wells would be considered "Non-Benefitted Subdistrict Land," and their land and water rights would not be included in the Amended Plan. Thus, landowners within the Subdistrict who do not wish to be part of the Subdistrict may have a means to operate their surface water and wells outside of the Amended Plan, subject always to the applicable provisions of the articles of incorporation, bylaws and rules and regulations of the ditch company, the statutes governing irrigation districts, and the rules and regulations of the irrigation district. See *e.g. Fort Lyon*

Canal Co. v. Catlin Canal Co., 762 P.2d 1375 (Colo. 1988); *Fort Lyon Canal Co. v. Catlin Canal Co.*, 642 P.2d 501 (Colo. 1982); §§ 37-41-113, 37-41-115, 37-43-124, C.R.S. (2009); see also *Jacobucci v. District Court*, 541 P.2d 667, 671 (Colo. 1975) (The relationship between the mutual ditch corporation and its shareholders arises out of contract, implied in a subscription for stock and construed by the provisions of a charter or articles of incorporation).

E. The Court Will Require Replacement of Depletions from Past Pumping of Subdistrict Wells that have yet to Accrue to the Stream System as a Term and Condition of Approval of the Amended Plan

189. At the conclusion of the first trial regarding the Original Plan, counsel discussed the unresolved issue of whether the Subdistrict would be required to replace ongoing injurious depletions from past pumping. That discussion suggested the parties might be able to reach a consensus or at least a compromise on this issue. As already noted, the February 2009 Order stated “The requirement of complete replacement of injurious depletions to senior surface water rights is a prerequisite for court approval and continued viability of any plan of water management...” February 2009 Order, at ¶188. The parties did not reach an agreement on this issue and so the question of whether the Amended Plan is deficient by failing to provide for replacement of ongoing injurious depletions from past pumping was a central focus of the continued legal proceedings. Prior to the second trial, the Acequia Objectors filed a *Motion for Determination of Question of Law Regarding the Obligation to Replace Ongoing Depletions from Past Pumping of Subdistrict Wells*. The Court denied the motion stating that the Court would allow the parties to present evidence on the issue at trial and that the Court would consider the Colorado Supreme Court’s then pending decision in *Well Augmentation Subdistrict of Central Colorado Water Conservancy Dist. v. City of Aurora*, 221 P.3d 399 (Colo. 2009) (*hereinafter WAS case*) before making a decision on this question.

190. It is uncontroverted that senior surface right owners in Division 3 are suffering current injury and will continue to suffer such injury due to past pumping of Subdistrict No. 1 wells. The Objectors ask the Court to reject the Amended Plan for this reason. Relying upon past practices in other water divisions, the history of water development in Division 3 and other factors, Supporters argue that the Court should approve the Amended Plan with one of two alternate provisions: either a requirement that Subdistrict No. 1 replace only those depletions that result from pumping that occurs after the Amended Plan is adopted which will phase in the lagged depletions from that pumping as time goes along, or a requirement that Subdistrict No. 1 replace only those depletions that have and will occur because of pumping that has occurred beginning in 2005, the first irrigation season after SB 04-222 was adopted.

191. In light of the Colorado Supreme Court's recent decision in the WAS case approving the water court's requirement for replacement of lagged depletions in Division 1, and because the Colorado Constitution and the 1969 Act require the Court to approve a plan of water management that maximizes beneficial use only if the plan also protects the constitutional doctrine of prior appropriation, the Court agrees with Objectors that the Amended Plan's provisions to protect senior water rights are inadequate. The Court addresses why it reaches this conclusion in this section and the consequence of this conclusion in subsequent sections.

1. Senior Surface Owners are Suffering Current Injury Due to Lagged Depletions from Prior Pumping

192. Both Supporters and Objectors acknowledge that the Rio Grande and its tributaries are overappropriated. See, *Alamosa-La Jara Water Users Protection Association v. Gould*, 674 P.2d 914, 918 (Colo. 1983). See also Exhibit 56 - *Findings of Fact, Conclusions of Law, Judgment and Decree* dated November 9, 2006, in Case No. 2004CW24, *Concerning the Matter of the Rules Governing New Withdrawals of Ground Water in Water Division No. 3 Affecting the Rate or Direction of Movement of Water in the Confined Aquifer System*, AKA "Confined Aquifer New Use Rules for Division 3" [hereinafter "2004CW24 Decree"], ¶¶ 19-22, ¶¶ 452-454, affirmed, *Simpson v. Cotton Creek Circles, LLC*, 181 P.3d 252 (Colo. 2008).

193. Since both the Confined and Unconfined Aquifers are overappropriated, groundwater withdrawals by wells tributary to the Rio Grande River and its tributaries are presumed to cause injury to senior surface water rights.⁸ *Simpson v. Cotton Creek Circles, LLC*, 181 P.3d 252, 256 (Colo. 2008); *Alamosa-La Jara Water Users Protection Association v. Gould*, 674 P.2d 914, 931 (Colo. 1983). The Amended Plan admits that the operation of the wells within the Subdistrict has caused and will continue to cause stream depletions to the Rio Grande River and its tributaries. Amended Plan, pg. 4 – 6. The RGDSS groundwater model confirms the legal presumption and the average calculations of actual stream depletions presented by Dr. Schreüder and Mr. Slattery for the period 1996 through 2005 as illustrated in Table 2 of Exhibit 95, reproduced above at page 55. The total average annual stream depletions, as calculated by Dr. Schreüder and Mr. Slattery for the period 1996 through 2005 is 6,101 acre-feet.

194. The annual Modeled Net Groundwater Consumptive Use (total groundwater consumption minus imported water offsets. Exhibit 99 1.c. at page 8 of 20) and Stream Depletions for specific stream reaches as calculated using the RGDSS groundwater model by Dr. Schreüder are indicated in the following table:

⁸ This Court addressed these principles more completely in its February 18, 2009, Order at ¶¶ 103-108 and in the many paragraphs incorporated in that Order from this Court's opinion in Case No. 2004CW24, dated November 9, 2006, See Exhibit 56 - ¶¶ 19-22.

Table 3: Modeled Net Groundwater Consumptive Use and Stream Depletions						
Year	Modeled Net Groundwater Consumptive Use (acre-feet)	Modeled Stream Depletions (acre-feet)				
		Rio Grande Del Norte to Excelsior	Rio Grande Excelsior to Chicago	Rio Grande Chicago to State Line and Norton Drain	Conejos River Rio San Antonio and McIntyre Spring	La Jara Creek
1970	71127	571	96	0	11	7
1971	76221	1075	240	4	24	25
1972	95402	1501	289	21	44	37
1973	32567	1670	275	19	45	50
1974	117499	1944	366	0	67	56
1975	55757	2020	318	42	62	70
1976	70622	2136	338	9	63	71
1977	142784	2442	412	-12	84	68
1978	97373	2781	575	79	107	84
1979	42201	2842	536	41	99	92
1980	67340	2857	503	26	96	96
1981	138137	3184	592	42	116	93
1982	77565	3331	699	38	109	112
1983	72875	3213	662	24	105	123
1984	85497	3316	645	34	112	133
1985	52320	3339	627	40	107	143
1986	62383	3153	578	24	94	142
1987	113999	3214	644	24	92	137
1988	147975	3341	699	33	110	125
1989	148981	3600	777	34	134	118
1990	102130	3691	866	52	135	121
1991	90647	3767	794	35	139	129
1992	87331	3855	798	24	135	136
1993	49299	3775	776	38	125	149
1994	104524	3808	728	26	134	145
1995	59254	3648	682	8	112	162
1996	156575	3748	683	25	135	136
1997	33514	3775	754	86	125	146
1998	120623	3699	671	17	127	134
1999	-53610	2627	665	73	113	139
2000	233148	3109	603	0	121	103

Year	Modeled Net Groundwater Consumptive Use (acre-feet)	Modeled Stream Depletions (acre-feet)				
		Rio Grande Del Norte to Excelsior	Rio Grande Excelsior to Chicago	Rio Grande Chicago to State Line and Norton Drain	Conejos River Rio San Antonio and McIntyre Spring	La Jara Creek
2001	71835	3777	692	57	138	119
2002	347807	4334	700	-45	130	88
2003	259224	6663	991	62	195	120
2004	149038	8173	1164	85	258	175
2005	101464	7809	1153	84	267	203

Exhibit 95, Pg. 13.

195. Not all of the depletions caused by pumping in a given year occur in that year. The evidence presented at trial demonstrated that there are continuing “lagged” depletions for a period of 18-20 years as calculated by the RGDSS groundwater model. The pumping of Subdistrict Wells prior to 2010 is projected to cause stream depletions to the Rio Grande River and its tributaries during the years 2010 through 2028, and the total amount of projected stream depletions during the period from 2010 to 2028 are approximately 48,993 acre-feet of water. Mr. Slattery notes that over the next 20 years, the average stream flow would be on the order of 12 to 13 million acre-feet. This means that the estimated lagged depletions from past pumping in Subdistrict 1 is approximately 0.4% of the stream flow.

196. Exhibit S-38 depicts the calculations of the estimated stream depletions associated with well pumping prior to 2010 and postulating zero well pumping during 2010 and following years as specified on Appendix 2:

Year	Total Stream Depletions Associated with Well Pumping prior to 2010 (AF)
2010	6320
2011	5526
2012	4974

Year	Total Stream Depletions Associated with Well Pumping prior to 2010 (AF)
2013	4538
2014	4113
2015	3764
2016	3362
2017	3108
2018	2796
2019	2681
2020	2144
2021	1937
2022	1265
2023	775
2024	586
2025	454
2026	311
2027	215
2028	124
2029	0
2030	0
2031	0
2032	0
2033	0
2034	0
2035	0
2036	0
2037	0
2038	0
2039	0
2040	0
Total	48993

197. As the evidence makes clear, senior surface right owners are seeing less water available at their headgates not only as a result of current pumping but also because of lagged depletions from pumping of Subdistrict No. 1 wells in prior years.

2. The Practical Difference Between the Supporters' and the Objectors' Plans for Replacement

198. Under the Amended Plan currently before the Court, the Subdistrict proposes to replace only those injurious stream depletions that result from Subdistrict Well pumping "on or after January 1 of the year following final judicial approval of this Plan." See AR-68 Amended Plan, at § II.F. The Amended Plan ignores ongoing depletions from past pumping by Subdistrict Wells and proposes to replace only future depletions including lagged depletions from pumping after the January 1 date.

199. During trial, the Supporters' witnesses and exhibits utilized the RGDSS groundwater model to illustrate what the predicted stream depletions would be. As explained above, prior to the recent drought the pumping of wells in Subdistrict No. 1 caused average stream depletions of about 4,563 acre-feet per year for the period 1991 through 2000. The practical difference between the competing positions before the Court is that the Objectors would have the Subdistrict begin replacing the total annual depletions immediately. The Amended Plan presented would work prospectively and phase in replacement of depletions over time. The modified proposal of the Supporters would begin replacement of lagged depletions back to 2005. According to the evidence, under the Amended Plan the Subdistrict would replace approximately 764 acre-feet of depletions in the first year, and these would increase to approximately 2,800 acre-feet by 2015 and then decline to an annual steady state depletion of approximately 1,426 acre-feet, assuming 40,000 acres are removed from irrigation in the Subdistrict between 2012 and 2019. See Exhibit 101, below (See also Exhibit 99, Table 1).

200. As Mr. Slattery noted, the reduction in irrigated acreage plays a central role in the Amended Plan and will bring a reduction in the net groundwater consumptive use for the Unconfined Aquifer in the Closed Basin. This reduction will enable the groundwater levels in the Unconfined Aquifer to rise and recover. The pressure heads in the Confined Aquifer are "at least in part a function of the groundwater levels in the unconfined aquifer." Recovery of the pressure heads in the Confined Aquifer will not occur if groundwater recovery does not occur in the Unconfined Aquifer. This Court praised and approved these steps and goals in the February 2009 Order. Mr. Slattery's projection of future stream depletions with the assumption that the Amended Plan is carried out are found in Table 2 of Exhibit 99 reproduced earlier at page 59. Table 1, below includes both historical and projected stream depletions.

Table 1
Estimated Historical and Projected Stream Depletions from
Groundwater Pumping in Sub-District No. 1
(units of ac-ft)

Year	Rio Grande at Del Norte Stream Gage	Net Groundwater Consumptive Use	Annual Stream Depletions ^{a)}					Conejos, Rio San Antonio, and McIntyre Springs	Total
			Rio Grande - Del Norte to Excelsior Ditch Headgate	Rio Grande - Excelsior Ditch Headgate to Chicago Ditch Headgate	Rio Grande - Chicago Ditch Headgate to Stalene	La Jara Creek			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
1970	655,773	71,127	978	115	1	7	8	1,110	
1971	484,706	76,221	1,544	215	10	24	21	1,814	
1972	477,603	95,402	1,380	271	22	37	34	1,744	
1973	833,068	32,567	1,340	277	21	43	35	1,715	
1974	337,524	117,499	1,609	351	28	50	47	2,085	
1975	808,068	55,757	1,952	394	30	61	51	2,488	
1976	591,769	70,622	2,295	437	28	68	56	2,885	
1977	215,109	142,784	2,396	518	43	81	74	3,112	
1978	406,594	97,373	2,365	555	52	93	82	3,146	
1979	954,545	42,201	2,418	543	45	96	80	3,181	
1980	751,044	67,340	2,767	567	41	98	82	3,556	
1981	409,537	138,137	2,862	633	55	109	98	3,758	
1982	697,700	77,565	3,298	677	55	120	102	4,252	
1983	674,497	72,875	3,416	688	53	125	105	4,386	
1984	762,182	85,497	3,013	674	60	129	111	3,987	
1985	1,010,482	52,320	3,137	687	56	129	109	4,098	
1986	1,032,957	62,383	3,319	669	53	131	111	4,283	
1987	1,017,365	113,999	3,238	697	63	136	121	4,255	
1988	434,863	147,975	3,534	773	74	146	133	4,660	
1989	494,094	148,981	3,805	844	82	159	145	5,035	
1990	525,955	102,130	3,679	845	82	163	145	4,915	
1991	607,459	90,647	3,551	830	79	161	143	4,765	
1992	487,150	87,331	3,472	815	78	159	141	4,665	
1993	655,612	49,299	3,615	795	71	158	137	4,776	
1994	540,065	104,524	3,501	792	73	156	139	4,660	
1995	831,422	59,254	3,708	790	70	157	135	4,860	
1996	397,712	156,575	3,854	848	78	161	146	5,086	
1997	948,238	33,514	3,516	787	75	160	137	4,675	
1998	578,359	120,623	3,530	799	73	155	139	4,696	
1999	918,902	-53,610	2,196	616	70	147	124	3,153	
2000	391,249	233,148	3,285	668	83	132	129	4,296	
2001	725,382	71,835	4,667	762	75	153	140	5,797	
2002	154,156	347,807	5,366	855	110	158	160	6,648	
2003	319,207	259,224	6,866	978	128	190	189	8,352	
2004	527,758	149,038	7,508	1,077	106	209	200	9,100	
2005	793,751	101,464	6,948	1,062	96	213	195	8,515	
2006	570,183	121,000	6,679	1,066	95	214	196	8,251	
2007	710,158	72,000	6,697	1,051	88	215	190	8,240	
2008	710,146	72,000	6,462	1,016	82	211	184	7,955	
2009	590,000	121,000	5,939	1,000	88	208	187	7,422	
2010		102,000	5,612	985	92	208	187	7,084	
2011		102,000	5,410	972	91	206	185	6,865	
2012		92,000	5,205	954	90	204	183	6,637	
2013		82,000	5,004	933	89	202	181	6,408	
2014		72,000	5,310	934	80	198	174	6,697	
2015		62,000	5,205	911	78	197	171	6,561	
2016		52,000	4,863	858	74	189	163	6,146	
2017		42,000	4,563	810	71	183	158	5,785	
2018		32,000	4,174	742	66	173	149	5,304	
2019		22,000	3,902	690	63	168	146	4,970	
2020		22,000	3,383	610	56	149	130	4,328	
2021		22,000	3,188	565	53	140	122	4,067	
2022		22,000	2,607	486	45	117	102	3,357	
2023		22,000	2,185	426	40	101	87	2,839	
2024		22,000	2,030	390	36	92	80	2,628	

Exhibit 101 - Stream Depletions for Subdistrict No. 1 - Slat, Table 1, 3/28/2010

Table 1
Estimated Historical and Projected Stream Depletions from
Groundwater Pumping in Sub-District No. 1
(units of ac-ft)

Year	Rio Grande at Del Norte Stream Gage	Net Groundwater Consumptive Use	Annual Stream Depletions ^{a)}					
			Rio Grande - Del Norte to Excelsior Ditch Headgate	Rio Grande - Excelsior Ditch Headgate to Chicago Ditch Headgate	Rio Grande - Chicago Ditch Headgate to Stateline	La Jara Creek	Conejos, Rio San Antonio, and McIntyre Springs	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2025		22,000	1,922	363	33	86	74	2,478
2026		22,000	1,806	336	30	79	69	2,320
2027		22,000	1,725	318	29	75	65	2,211
2028		22,000	1,650	302	27	70	61	2,110
2029		22,000	1,550	281	25	65	56	1,976
2030		22,000	1,470	264	23	60	52	1,869
2031		22,000	1,394	249	21	56	48	1,768
2032		22,000	1,330	237	20	52	45	1,684
2033		22,000	1,277	226	18	50	42	1,613
2034		22,000	1,226	218	18	47	40	1,548
2035		22,000	1,186	212	17	45	38	1,498
2036		22,000	1,157	208	16	43	37	1,461
2037		22,000	1,138	205	16	43	36	1,438
2038		22,000	1,129	204	16	42	35	1,426
2039		22,000	1,129	204	16	42	35	1,426
2040		22,000	1,129	204	16	42	35	1,426
Avg	625,809	73,091	3,247	610	55	123	109	4,145
88-05 Avg	573,963	122,764	4,256	830	84	163	149	5,481
70-05 Avg	623,663	102,262	3,331	663	62	124	111	4,292

a) Estimated stream depletions shown in this table are greater than the stream depletions that potentially cause injury to surface water rights.

Explanation of Columns

- (1) Calendar Year
- (2) Measured total streamflow at the Gage. 2009 value estimated from June 22, 2009 10-Day Report
- (3) Amount of Groundwater Consumption in Sub-District No. 1 that is greater than the amount of consumptive use that is offset by the recharge decrees as computed from input to the Groundwater Model for 1970-2005. 2006-2009 values estimated by selecting a year with similar streamflow records for the Del Norte Gage and the corresponding Net Groundwater consumptive Use. (2006=1998, 2007=2001, 2008=2001, and 2009=1998). 2010-2030 estimated using the 1970-2005 average with a decrease of 10,000 ac-ft/yr from 2012-2019 to approximate the effects of removing 5,000 acres/year for 8 years through the CREP program or by other means (total of 40,000 acres). 2020-2030 values same as 2019 value.
- (4) Stream depletion in the reach of the Rio Grande from the Del Norte gage to the Excelsior Ditch headgate.
- (5) Stream depletion in the reach of the Rio Grande from the Excelsior Ditch headgate to the Chicago Ditch headgate.
- (6) Stream depletion in the reach of the Rio Grande from the Chicago Ditch headgate to the Stateline.
- (7) Stream depletions to the La Jara Creek.
- (8) Combined stream depletions to the Conejos River, the Rio San Antonio, and to McIntyre Springs.
- (9) Calculated as Col4 + Col5 + Col6 + Col7 + Col8

201. While the above graphs and charts give some understanding of what the calculation of stream depletions look like, they do not give a good understanding of the difference between the Supporters' original proposal for replacement of depletions only as of the approval of the Subdistrict versus the Objectors' view that all ongoing lagged depletions must be replaced. Mr. Slattery's expert report, Exhibit 99, contains two graphs which make the issue clearer. Figure 4 illustrates the historical stream depletions as calculated by use of the groundwater model and the response functions through the year 2009 and projected depletions for the years 2010 through 2040. (The figure does assume retirement of 40,000 acres, as do the other illustrations presented to the Court).

Figure 4
Estimated Historical and Projected Stream Depletions from
Groundwater Pumping in Sub-District No. 1

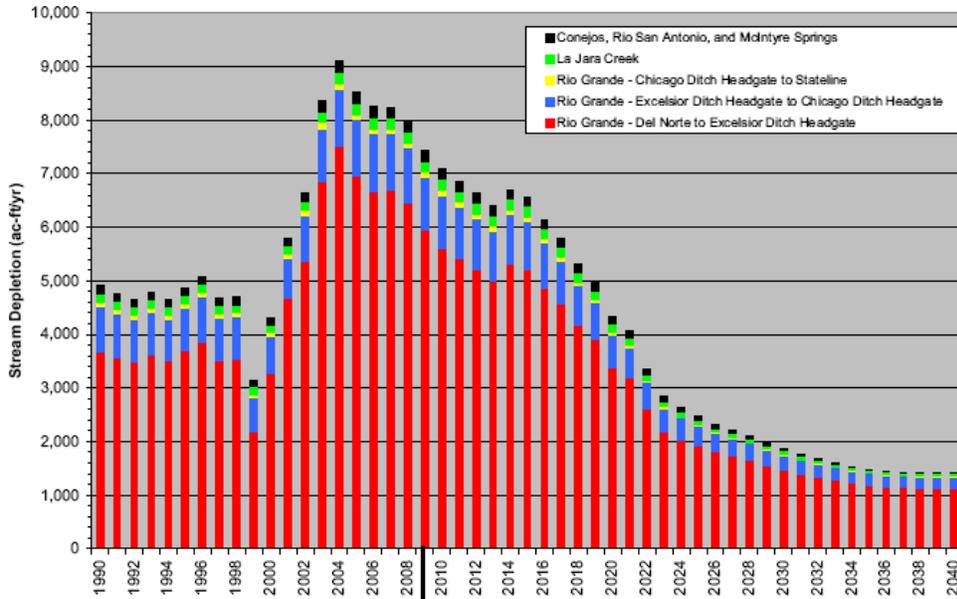
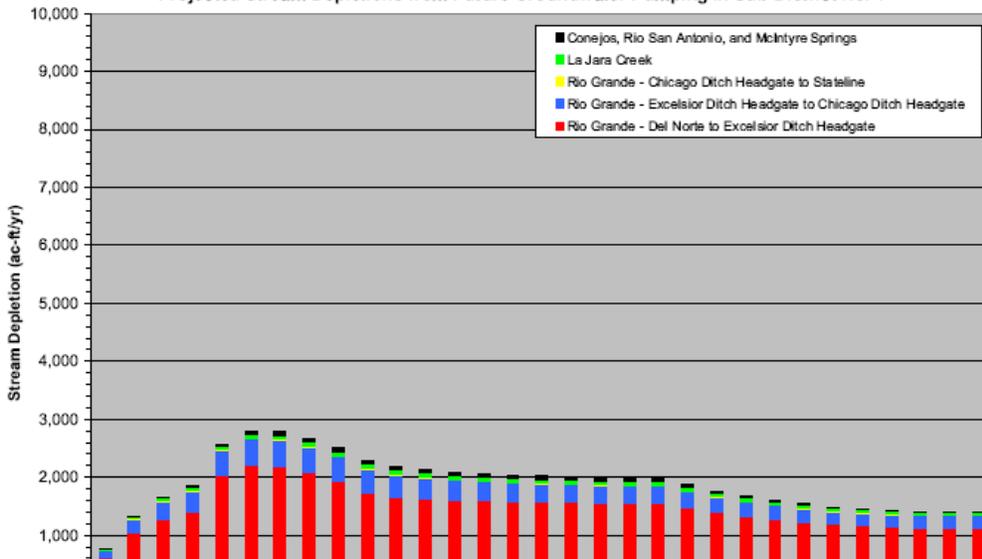


Figure 5 contains the same projected stream depletions for the years 2010 to 2040 resulting from future groundwater pumping in Subdistrict No. 1 without any lagged depletions for the years prior to 2010 (and assuming retirement of 40,000 acres). See Opinion 8, James E. Slattery, Exhibit 99.

Figure 5
Projected Stream Depletions from Future Groundwater Pumping in Sub-District No. 1



3. The Constitution and the 1969 Act Make Clear that Water in Colorado is to be Managed to Serve Two Goals: Protecting Prior Appropriations and Maximizing Beneficial Use.

202. The Colorado Constitution provides that the “water of every natural stream” is subject to the prior appropriation doctrine and that priority of appropriation for beneficial use is the foundation upon which water rights depend. Colo. Const. art XVI, §§ 5-6; *Empire Lodge Homeowners' Ass'n v. Moyer*, 39 P.3d 1139, 1146-47 (Colo.2002). As the Supreme Court succinctly states in *Colorado Water Conservation Bd. v. City of Central*, 125 P.3d 424, 434 (Colo.2005):

Colorado water law involving surface streams and tributary groundwater is governed by the doctrine of prior appropriation. See Colo. Const. art. XVI, § 6; *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 447 (1882). Generally, the first appropriator of water for a beneficial use has a prior right to the water to the extent of such appropriation. *Coffin*, 6 Colo. at 447.

203. There is, however, considerably diminished value in a senior water right if there is no method for enforcement of the priorities. Accordingly, the legislature created the Office of the State Engineer to administer the rights in relation to one another. As one commentator has put it:

So as to assure that rights may be administered in relation to each other under varying conditions of available supply, a priority system of water rights for beneficial use requires a mechanism for determining the source of supply, type of uses, date and amount of appropriation, location and identity of the diversion structure, and place of use.⁹

204. For many years, the administration of water was limited to surface streams and the connection between the protection of senior surface rights and the regulation of groundwater was not well understood. It was not until 1957 that the legislature even required registration of existing wells with the State Engineer, as well as requiring an application to the State Engineer for a new well permit before a well could be drilled or the supply of water from an existing well could be increased or extended. C.R.S. § 147-19-5 (1960 Perm. Supp)

205. Following the Supreme Court decision in *City of Colorado Springs v. Bender*, 366 P.2d 552 (Colo. 1961), which pointed out this lack of legislative provision for joint administration of tributary groundwater, the General Assembly adopted the Colorado Ground Water Management Act. C.R.S. § 148-18-1, et seq., which provided that if “the state engineer shall *find that the vested water rights of others will not be materially injured*, he shall issue a ‘permit to construct a well’, but not otherwise.” (Emphasis added). In 1967 the General Assembly amended the standard for issuance

⁹ Gregory J. Hobbs, *Colorado Water Law: An Historical Overview*, 1 U. Denv. Water L. Rev. 1 (1997)

of a well permit in section 148-18-36(2) to require a determination by the state engineer that if “the vested water rights of others will not be materially injured, and *can be substantiated by hydrological and geological facts*, he shall issue a ‘permit to construct a well’, but not otherwise; . . .” (Emphasis supplied).

206. Finally, in 1969, the General Assembly enacted the Water Right Determination and Administration Act of 1969, which although it does not explicitly address the question of ongoing depletions from past pumping, it does, ambitiously seek to fulfill the promise of the Colorado Constitution that the “water of every natural stream” is subject to the prior appropriation doctrine. The natural tension between the constitutional doctrine of prior appropriation and “the right to appropriate the unappropriated waters of the natural streams of the state for beneficial use” is reflected in the declaration of the legislative intent of the 1969 Act now found at Section 37-92-102(1)(a):

It is hereby declared to be the policy of the state of Colorado that all water in or tributary to natural surface streams, not including nontributary ground water as that term is defined in section 37-90-103, originating in or flowing into this state have always been and are hereby declared to be the property of the public, dedicated to the use of the people of the state, subject to appropriation and use in accordance with section 5 and 6 of article XVI of the state constitution and this article. As incident thereto, it is the policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all the waters of this state.

207. The objective of the 1969 Act is to promote multiple uses of a finite resource for beneficial purposes. *Application for Water Rights of the Upper Eagle Regional Water Authority*, (09SA168). P.3d , 2010 WL 2026268, Colo. May 24, 2010, *Empire Lodge*, 39 P.3d at 1146-47. The replacement of ongoing depletions from past pumping is one aspect of the broader question of how to protect prior appropriation rights, integrate wells with surface rights and, at the same time, “maximize the beneficial use of all the waters of the state” as promised in the declarations of the 1969 Act.¹⁰ The 1969 Act followed the Supreme Court opinion in *Fellhauer v. People*, 167 Colo. 320, 447 P.2d 986 (1968), which declared “the curtain is opening upon the new drama of *maximum utilization* and how constitutionally that doctrine can be integrated into the law of *vested rights*.” This Court described *Fellhauer* and its aftermath in 2004CW24 ¶¶ 457-470. In ¶ 459, this Court stated:

459. The General Assembly responded to the invitation extended by *Fellhauer* with the enactment of the Water Right Determination and Administration Act of 1969.¹¹ The Supreme Court characterizes the Act as follows:

¹⁰ §37-92-102(1)(a)

¹¹ See ch. 373, sec. 1, sections 148-21-1 through 148-21-45, 1969 Colo. Sess. Laws 1200, 1200-1219.

The purpose of the Act was “to integrate the appropriation, use and administration of underground water tributary to a stream with the use of surface water, in such a way as to maximize the beneficial use of all of the waters of this state.” *Id.*, § 148-21-2(1) at 1200 (currently codified at § 37-92-102(1)(a), 10 C.R.S. (2002)). The Act ushered in a host of changes to the state water law administrative scheme. It established the current system of water divisions and courts, *Id.* sections 148-21-8 through 148-21-11 at 1202-05 (currently codified at sections 37-92-201 through 37-92-204, 10 C.R.S. (2002)), and set forth detailed administrative duties of the State and Division Engineers, particularly with regard to the integration of groundwater into the water law system. *Id.* § 148-21-17 through 148-21-45 at 1205-19 (currently codified at §§ 37-92-301 through 37-92-504, 10 C.R.S. (2002)).

As a result of the Act's stated policy of conjunctive use,¹² wells were required to be integrated into the priority system, although unadjudicated wells in existence prior to 1969 were allowed to continue. See *Id.* § 148-21-2(2)(a) at 1200-01 (“Water rights and uses heretofore vested in any person by virtue of previous or existing laws, *including an appropriation from a well*, shall be protected subject to the provisions of this article.”) (emphasis added) (currently codified at § 37-92-102(2)(a), 10 C.R.S. (2002) in slightly modified form).^{FN9} The Act, nevertheless, encouraged the adjudication of existing wells by allowing well owners who filed an application by July 1, 1971, to receive a water decree with a priority dating back to their original appropriation date. *Id.* § 148-21-22 at 1212.¹³

208. The 1969 Act intends to provide for the adjudication and administration of tributary water under a system of priorities, implementing the constitutionally-based right of prior appropriation. *R.J.A., Inc. v. Water Users Ass'n*, 690 P.2d at 825; *State v. Southwestern Colorado Water Conservation Dist.*, 671 P.2d at 1308-09. The general plan of integration is intended to ensure that in times of short supply, water rights are curtailed in reverse order of priority, junior to senior, in accordance with the decrees of the water court to the extent that is physically possible. The 1969 Act provides that out-of-priority diversions are allowed only if a water court-adjudicated augmentation plan, or a State Engineer-approved substitute supply plan, or, in Division 3, a plan of water management is in effect to replace depletions to the water supply that would injure decreed water rights. The General Assembly understood in enacting the 1969 Act that integration of wells into the priority system risked dire economic consequences for well-

¹² The term “conjunctive use” refers to the combined priority administration of ground and surface waters of the state. James N. Corbridge, Jr. & Teresa A. Rice, *Vranesh's Colorado Water Law* 16 (rev. ed.1999).

¹³ *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50, at 60 (Colo. 2003)

dependent farms and for the general agricultural economy. This is why the Act so specifically discusses “sound and flexible integrated use of all waters of the state,”¹⁴ and specifically states the Act intends to protect existing groundwater rights and that the goal is to have “optimum use of water consistent with preservation of the priority system of water rights.”

209. This tension is again evident in the 1971 amendment to the 1969 Act where the General Assembly sought to provide additional guidance to the State Engineer for the administration of groundwater rights and for the adoption of rules and regulations. See 1971 Colo. Sess. Laws 1330, 1331-32 (now section 37-92-501(1)-(3)). The General Assembly directed, among other things, that:

(1) The state engineer and the division engineers shall administer, distribute, and regulate the waters of the state in accordance with the constitution of the state of Colorado, the provisions of this article and other applicable laws, and written instructions and orders of the state engineer, in conformity with such constitution and laws; and no other official, board, commission, department, or agency, except as provided in this article and article 8 of title 25, C.R.S.[1973], has jurisdiction and authority with respect to said administration, distribution, and regulation. *It is the legislative intent that the operation of this section shall not be used to allow ground water withdrawal which would deprive senior surface rights of the amount of water to which said surface rights would have been entitled in the absence of such ground water withdrawal and that ground water diversions shall not be curtailed nor required to replace water withdrawn, for the benefit of surface right priorities, even though such surface right priorities be senior in priority date, when, assuming the absence of ground water withdrawal by junior priorities, water would not have been available for diversion by such surface right under the priority system.* The state engineer may adopt rules and regulations to assist in, but not as a prerequisite to, the performance of the foregoing duties.

Section 37-92-501(1), C.R.S. (2005) (emphasis added). The statutes and amendments quoted show an unwavering commitment by the General Assembly that replacement of injurious depletions in a manner that minimizes the impact on existing vested groundwater rights is the purpose and requirement of these legislative acts. This is clear in the direction from the legislature that any rules and regulations enacted by the State Engineer shall have as their objective the “optimum use” of water consistent with preservation of the priority system of water rights. Section 37-92-501(2)(e).

¹⁴ Section 37-92-102(2)

4. Integration of Surface Streams and Groundwater in Division 3 is Very Difficult in Practice.

210. The boldness of the 1969 Act's promise to integrate groundwater with surface streams is not discussed often, but the real world difficulties of accomplishing the integration, both with the science and with the practical and financial realities has played out across the state for the past forty years. In several water basins, including the Rio Grande, the impact of the proliferation of wells upon surface flows became noticeable, albeit difficult to quantify or to tie to particular wells. It has often been observed that Division 3 is "unique," complex and non-linear, and this complicates this process of integration. From a cursory review of the history of well-drilling in the San Luis Valley, it becomes clear that a time of reckoning had to occur.

211. Review of Appendix 3 to the Amended Plan of Water Management is revealing in this regard. That database shows that the first irrigation wells were constructed in the Subdistrict area in the 1890's and that new well construction did not end until 1981. Approximately 52 irrigation wells had been constructed in the Subdistrict area by 1900, and approximately 1,952 more irrigation wells had been constructed by 1956, all when Colorado law did not require a permit to construct a well or to increase or extend the supply of water from an existing well. During the period 1957 to 1964 some additional 660 irrigation wells were constructed in the Subdistrict area. Beginning in 1965, when the State Engineer was only authorized to issue well permits if he found there would be no material injury to vested water rights, and continuing through 1970, there were some 450 new irrigation wells constructed in the Subdistrict area. Beginning in 1971, when the State Engineer was required to find that unappropriated water was available and to find an absence of injury to other vested water rights before issuing a well permit, and continuing through 1975, the year when the first groundwater regulations were promulgated for Water Division No. 3, there were some 404 new irrigation wells constructed in the Subdistrict area. Even after promulgating the 1975 groundwater regulations for Water Division No. 3, the State Engineer continued to issue well permits for the construction of irrigation wells in the Subdistrict area. Between 1975 and 1981, when the State Engineer imposed a moratorium on new wells in the Unconfined Aquifer of the Closed Basin, some 578 additional irrigation wells were constructed within the Subdistrict area.¹⁵

212. The above history documents the fact that the General Assembly, the State Engineer and the courts continue to struggle with the balance of these competing objectives and the real world consequences to the agricultural communities of the state. In *Empire Lodge Homeowners' Ass'n v. Moyer*, 39 P.3d 1139, 1148 (Colo. 2001), the

¹⁵ The Court notes that during the trial on the proposed 1975 rules and regulations, Philip Emery suggested the Confined Aquifer had reserves of underground water of 2 billion acre-feet of storage which certainly did not discourage drilling activity. The RGDSS has determined these estimates were more than double the amount of water actually in the aquifer (2004CW24, ¶ 197, at page 67), and further studies verify that substantial portions of the water in the lowest layers are not of good quality. (2004CW24 ¶188 at p. 63)

Supreme Court described the dilemma resulting from wells depleting tributary groundwater as follows:

Strict application of the priority doctrine to overappropriated basins would restrict new water uses to changes of water rights. How to protect prior appropriation rights while also allowing new uses required a government response.

213. The still-evolving 1969 Act is that response. Augmentation plans, and now plans of water management are the proposed means to allow creative new uses of water while protecting senior water rights. A truth presented in Supporters' Amended Plan is that there are real limits on how much water can be withdrawn from the aquifers in the Rio Grande Basin. The proposed fallowing of 40,000 acres will be recognized in the future as an important and courageous milestone in water development in this state; water users have proposed to reduce land under production in order to replenish and manage the aquifers.

5. SB 04-222 Takes the Next Step to Allow New Flexibility and Encourage Best Efforts to Integrate Surface Streams and Groundwater While Protecting the Rights of Senior Water Users.

214. The drought at the beginning of the century motivated the water users in Division 3 to look for long-term, sustainable solutions for the Rio Grande Basin. With the ever present demands of the Rio Grande Compact¹⁶ and its delivery obligations which are borne solely by the senior surface rights on both the Rio Grande and the Conejos River, problem solvers in the basin¹⁷ were motivated to rethink the entire framework for management of the basin's aquifers and streams, including how to successfully address injurious depletions to senior water rights. With no rules in place after forty years and following the best efforts to agree on steps, including the Closed Basin Project¹⁸ and the related 60/40 Agreements,¹⁹ which failed to fully address the problem of injurious depletions to senior surface rights on the various tributaries, Division 3 water users asked the General Assembly to give them statutory authority to try a fresh approach. The result was SB 04-222 which creates the concept of water-user controlled subdistricts with the power to tax and to address, in a comprehensive way, all the water issues in the basin.

¹⁶ § 37-66-101, et seq. C.R.S. 2009

¹⁷ While this Court has had this matter under advisement, two central figures in water affairs here and elsewhere in the state for the last quarter century were killed in a tragic accident. The Court acknowledges the enormous contributions to this basin of Douglas L. Shriver and Raymond Brett Wright, whose powerful voices for a managed, sustainable basin with protection of all the water rights here in the Rio Grande Basin will be greatly missed

¹⁸ The original conditional decree is found in Case W 3038, dated April 21 1980; See also 2004 CW 24 ¶¶ 100-113. The most recent finding of diligence is in 2008CW1.

¹⁹ See Exhibits 16-20, from the 2008 trial.

215. When the General Assembly adopted SB 04-222 in 2004, it again directed the State Engineer to adopt rules and regulations for all withdrawals from the aquifers in Division 3 in order to achieve the integrated administration of surface and groundwater promised in the 1969 Act. In SB 04-222, the legislature imposed new rule-making standards for the State Engineer with respect to wells in Division No. 3 and authorized the creation of groundwater management plans which, if approved by the State Engineer and the water court, exempt the wells in the plan from the yet-to-be promulgated rules and regulations. The General Assembly required that any such plan must meet the standards in § 37-92-504(4)(a) and (b) that are imposed for rules. Those standards include the grant of “wide discretion” to the State Engineer and emphasize the intent to protect existing groundwater usage consistent with the legislature’s special directives for Division 3:

[I]n recognition of the unique geologic and hydrologic conditions and the conjunctive use practices prevailing in division 3, the state engineer shall have wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights. Any reduction in underground water usage required by such rules shall be the minimum necessary to meet the standards of this subsection (4).

216. The special characteristics in Division 3 are recognized by the General Assembly in section 37-92-501(4)(a). The provision in SB 04-222 allowing the development of subdistricts and plans of water management within Division 3 are tailored to the unique and complex nature of the basin and the difficult, if not presently impossible, task of defining individual plans of augmentation for the thousands of wells in the basin in a manner that would begin to resemble the actual interrelationship of the various streams and the wells, let alone actually replace injurious depletions to surface rights in time, location and amount.

217. In Case No. 2004CW24, *Findings of Fact, Conclusions of Law, Judgment and Decree* dated November 9, 2006, this Court found that the General Assembly has the power to permit plans of water management as alternatives to augmentation plans as a means to optimize water use in an overappropriated basin while still protecting senior water rights:

476. Finally, SB 04-222 promises water users who form a subdistrict a form of self-regulation. They have a window of opportunity to form subdistricts and to propose groundwater management plans to reduce water use and protect senior appropriators and the Rio Grande Compact obligation without the requirement for individual augmentation plans.²⁰ Under the statute, any proposal must be approved by the State Engineer and submitted to the water court for approval.²¹ This may or may not prove to be feasible. That issue is not before this Court today.

²⁰ Section 37-92-501(4)(c)

²¹ This procedure acknowledges the primacy of water court review and adjudication as set out in *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50, 67 (Colo. 2003).

477. The General Assembly has the power to statutorily authorize alternatives to an augmentation plan which accomplish the same constitutional objectives of protecting senior water rights in priority and optimizing the use of our scarce water resources. The Rules regarding new withdrawals from the confined aquifer are only one piece of the effort to integrate surface and groundwater uses in priority protecting senior water rights and the Compact obligation in a sustainable way.

478. HB 98-1011, SB 04-222 and the Rules extend logically the “policy of maximum flexibility that also protected the constitutional doctrine of prior appropriation.” *Empire Lodge Homeowners' Ass'n v. Moyer*, 39 P.3d 1139, 1150 (Colo. 2001). SB 04-222 allows the State Engineer and water users to seek creative solutions to the problems of overappropriation in order to protect senior surface and groundwater rights and the Rio Grande Compact obligation.

479. Clearly these provisions seek to avoid the kind of economic hardship observed on the Front Range. Just as the Colorado Ground Water Management Act of 1965 was “designed to permit the full economic development of designated groundwater resources,”²² SB 04-222 seeks to protect senior rights and allow the full economic development of the water resources in the Rio Grande Basin in a way that is sustainable for future generations. Concern for existing water users was one of the basic tenets announced in the 1969 Act. Section 37-92-102(2)(b) provides: “Water rights and uses vested prior to June 7, 1969, in any person by virtue of previous or existing laws, including an appropriation from a well, shall be protected subject to the provisions of this article.” The Rules proposed for new wells in the confined aquifer must be read together with the other steps taken and proposed for the existing wells in both the confined and unconfined aquifer which seek to further this goal of sustainable use protecting senior rights.

218. This Court indicated in its February 2009 Order, in the 2004CW24 ruling quoted above, and earlier in this opinion, that it endorses conceptually the use of subdistricts and plans of water management to carry forward the “policy of maximum flexibility that also protects the constitutional doctrine of prior appropriation.” *Empire Lodge, supra*. The potential for subdistricts to serve as a better alternative than individual augmentation plans is self-evident. The experts expressed doubt that an augmentation plan for an individual well or a small group of wells could be done with any engineering validity. A large-scale augmentation plan for many wells (such as in the WAS case) may well be possible but does not address basin-wide management and sustainability. But, plans of water management can include efforts to attain the statutory

²² *Danielson v. Vickroy*, 627 P.2d 752, 756 (Colo. 1981)

goals set out for the State Engineer including sustainability of the Confined and Unconfined Aquifers. In addition, plans of water management are flexible and can change over time in accordance with the developing understanding of the basin provided by the Rio Grande Decision Support System and its groundwater model. In a basin as complex as the Rio Grande, where the RGDSS is exponentially improving our understanding and thus our ability to make more accurate predictions, it is both common sense and good law to take a flexible, changeable approach that "follows the science." This flexibility and open-minded approach to new understanding is especially critical in a complex, non-linear water system. Understanding the relationships and effects upon one another of all the elements in the RGDSS and its water budget includes understanding the relationship over time of groundwater withdrawals and surface flows. With the surface flows of several streams highly dependent upon the flow of springs connected to the Confined Aquifer, these are problems which test the limits of even the best mathematical models.

219. However, this new tool provided to water users by SB 04-222 did not change the goals or the requirements for regulation or the duty to protect senior surface rights that remain in the 1969 Act. SB 04-222 has added an alternative to augmentation plans and regulation which requires senior water rights be protected while simultaneously allowing wells to pump. In other words, another way to fulfill the "policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all the waters of this state." The 1969 Act as a whole, including the new provisions found in SB 04-222, rest upon and are intended to implement and enforce the dual principles of prior appropriation and maximum utilization. Interpreting the language of the 1969 Act is always founded in these constitutional principles.

6. *Well Augmentation Subdistrict of the Central Water Conservancy District and South Platte Well Users Association v. City of Aurora and Ongoing Depletions from Past Pumping*

220. The Supreme Court decided *Well Augmentation Subdistrict of Central Colorado Water Conservancy Dist. v. City of Aurora*, 221 P.3d 399 (Colo. 2009) ("WAS") on November 23, 2009; and the Court modified the opinion in part pursuant to a petition for rehearing on December 14, 2009. The Colorado Supreme Court affirmed "the water court's requirement that WAS provide replacement water for pre-2003 depletions that have a continuing injurious effect on surface waters." The Supreme Court rejected a jurisdictional objection to this requirement and focused upon the intention of the General Assembly and specific language in sections 37-92-305(3), (5) and (8), statutory provisions applicable to plans for augmentation. The question now before the Court in these consolidated cases is whether, and to what extent, the rule of law announced in *WAS* applies to this Court's review of the Amended Plan for Subdistrict No.1 in Water Division 3 under section 37-92-501(4), C.R.S. (2009).

221. In Division 1, a group of well owners formed the Well Augmentation Subdistrict of the Central Colorado Water Conservancy District in order to provide augmentation water to offset the out-of-priority depletions caused by 215 structures. Augmentation plans were created by the 1969 Act and the Supreme Court has described these provisions in the 1969 Act:

As administration of water approaches its second century, the General Assembly chose to implement a policy of maximum flexibility that also protected the constitutional doctrine of prior appropriation. Through the 1969 Act, the General Assembly created a new statutory authorization for water uses that, when decreed, are not subject to curtailment by priority administration. This statutory authorization is for out-of-priority diversions for beneficial use that operate under the terms of decreed augmentation plans.²³

222. In the WAS case, the Supreme Court held:

Subsection (3)(a)[§37-92-305(3)(a)] states that a plan for augmentation “shall be approved if such ... plan will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right.” Subsection (5) states, “In the case of plans for augmentation ..., the supplier may take an equivalent amount of water at his point of diversion or storage if such water is available without impairing the rights of others.” Subsection (8)(a) requires the water court, “in reviewing a proposed plan for augmentation and in considering terms and conditions that may be necessary to avoid injury,” to consider “the depletions from an applicant's use or proposed use of water, in quantity and in time, the amount and timing of augmentation water that would be provided by the applicant, and the existence, if any, of injury” to any person entitled to use water under a vested water right or a decreed conditional water right. Subsection (8)(c) states “a plan for augmentation shall be sufficient [if] ... the applicant ... provide[s] replacement water” to the extent “the senior would be deprived of his or her lawful entitlement” of water. Subsection (8)(c) also requires the terms and conditions of the augmentation plan to require replacement of “out-of-priority depletions that occur after any ground water diversions cease.” *Well Augmentation Subdistrict of Central Colorado Water Conservancy Dist.*, at 410.

223. The Division 1 water court was confronted with the question of whether or not injurious depletions resulting from past pumping needed to be replaced in the augmentation plan for the wells in WAS. The water court answered this affirmatively, and this was the central issue before the Supreme Court. WAS presented arguments against the requirement of replacement of depletions from past pumping on the basis of

²³ *Empire Lodge Homeowners' Ass'n v. Moyer*, 39 P.3d 1139, at 1150 (Colo. 2001)

legislative history and that such a requirement would violate the intent of the 1969 Act.²⁴ The Supreme Court, summarized these issues as follows:

WAS admits that no provision of the 1969 Act forbids the conditioning of augmentation plan approval upon the replacement of well depletions caused by pumping that occurred prior to the filing of the augmentation plan application. However, relying on the language of section 37-92-305(3), (5), and (8), WAS asserts that requiring replacement water for pre-2003 depletions is contrary to the intent of the General Assembly. WAS argues that, because the water court's task is to consider whether the "plan" will injuriously affect senior water rights, the only way the plan could injuriously affect senior rights is if diversions authorized by the plan result in un-replaced depletions at some point in the future. WAS argues the injury resulting from depletions caused by pumping completed prior to approval of the plan cannot logically be caused by the approval of the plan itself, and exists whether or not the plan is approved. *Supra*, at 410.

224. The Supreme Court held that it is the water rights included in a plan of augmentation that must provide replacement water for any injurious depletions they have made. This interpretation relies in part upon the specific language of the augmentation statute wording and its reference to "use or proposed use" in section 37-92-305(8)(a), but the court took an expansive view of these words in keeping with the need "to enable the water court to craft terms and conditions aimed at protecting water rights from injury without temporal limitation as to when the pumping occurred." *Supra*, at 411. The Supreme Court based this holding "on a plain reading of the 1969 Act's requirements that the water court prevent present and future injury to other water rights." *Application for Water Rights of the Upper Eagle Regional Water Authority*, 2010 WL 2026268, Colo. May 24, 2010 (09SA168).

225. The decision in *Well Augmentation Subdistrict of Central Colorado Water Conservancy Dist. v. City of Aurora* makes clear that a water court has the authority to require replacement of ongoing depletions from past pumping in an augmentation plan if that is necessary to protect senior water rights, and that doing so is supported by the dual purposes of the 1969 Act.

7. Plans of Water Management Intended to Deal with Ongoing Depletions from Past Pumping are Subject to a Similar Analysis as in WAS.

226. After the trial in this case, and after proposed orders were submitted to this Court, the Supreme Court rendered its opinion in *Well Augmentation Subdistrict of the Central Water Conservancy District and South Platte Well Users Association v. City*

²⁴ The applicants in WAS also argued that the water court had no jurisdiction to order replacement for water pumped prior to the adoption of the augmentation plan application in 2003.

of *Aurora, et al*, 221 P.3d 399 (Colo. 2009). Accordingly, this Court requested and received additional briefing and proposed language from the parties with regard to the impact of that opinion on this case.

227. The Objectors cite *WAS* as vindication of their longstanding contention that the Subdistrict is required to replace the total annual injurious depletions from the wells in the Amended Plan including those depletions caused by historical pumping which have not yet accrued. The Acequia Objectors argue this is so as a matter of law. See, pretrial *Motion for Determination of Question of Law Regarding the Obligation to Replace Ongoing Depletions from Past Pumping of Subdistrict Wells* (“Ongoing Depletions Motion”). They point to the following language in *WAS* :

The water court then had a duty under section 37-92-305 to ensure that operation of the plan would not prove injurious to senior vested water rights and decreed conditional water rights. In order to fulfill this duty and prevent harm to senior water rights, the water court conditioned approval of the augmentation plan on the requirement that *WAS* provide replacement water for pre-2003 depletions that are currently affecting surface water conditions. Requiring *WAS* to provide replacement water for such depletions is specifically aimed at preventing injury to senior water rights, and is accordingly within the scope of the proceedings outlined in section 37-92-302.

228. Supporters argue that *WAS* is distinguishable from this case but that, to the extent it applies, it is a new rule of law and the Court should exercise discretion and take a middle path. The Amended Plan proposes to replace depletions occurring as a result of pumping after the first of January following the approval of the Amended Plan. Thus, it would only phase in replacement of lagged depletions one year at a time until annual depletions from post-approval pumping reach that steady state number. (According to the evidence, if only future depletions are addressed, the Subdistrict would replace approximately 764 acre-feet of depletions in the first year, and these would increase to approximately 2,800 acre-feet by 2015 and then decline to annual steady state depletions of approximately 1,426 acre-feet when 40,000 acres have been removed from irrigation in the Subdistrict. See Exhibit 101, Table 1.) The language Supporters proposed after the *WAS* opinion was issued suggests, as an alternative, that the Court require replacement of ongoing depletions from past pumping beginning with 2005. The proposed language also suggests that it is not possible for the Subdistrict to replace depletions before 2012 given the financial structure of the Subdistrict.

229. Supporters argue that the factual and legal situation in *WAS* is distinguishable from the circumstances before this Court because Water Division 1 has been subject to rules and regulations promulgated by the State Engineer since 1974, while there are no currently applicable rules for existing Unconfined or Confined Aquifer wells in Division 3. Supporters argue that in the absence of rules, there is no basis to impose a requirement to replace lagged depletions. They point to the language of

section 37-92-501(4) as reinforcing the requirement that the State Engineer must have rules and regulations in place in Water Division 3 before he may curtail wells or require those wells to replace injurious depletions:

In addition to the provisions of subsection (2) of this section, when adopting rules governing the use of underground water in division 3, and in recognition of the unique geologic and hydrologic conditions and the conjunctive use practices prevailing in division 3, the state engineer shall have wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights. Any reduction in underground water usage required by such rules shall be the minimum necessary to meet the standards of this subsection (4).

Supporters also point to subparagraph (4)(a)(IV) to argue that the State Engineer must adopt rules and regulations in order to implement the principles set out in section 37-92-501(4)(a):

Nothing in subparagraph (I) or (II) of this paragraph (a) shall be construed either to relieve wells from the obligation to replace injurious stream depletions *in accordance with the rules* adopted by the state engineer or to permit the expanded use of underground water....

230. The lack of rules and regulations in Division 3, however, does not change the Court's analysis. The Court certainly agrees that in the absence of rules and regulations the State Engineer does not have authority to curtail groundwater pumping by individual wells. The Supreme Court clearly prohibited this in *Fellhauer v. People*, 167 Colo. 320, 447 P.2d 986 (1968), and requires rules and regulations to prohibit a well from pumping to avoid violation of the equal protection clause of the Fourteenth Amendment of the United States Constitution and the due process clause in article II, section 25 of the Colorado Constitution. But this does not mean that the Court cannot consider the replacement of lagged depletions as a condition for permitting out-of-priority diversions under a plan of water management. As Justice Coats observed in his partial dissent in *WAS*, there is a distinction between an action to curtail or penalize and an application for permission to divert out-of-priority by use of an augmentation plan in that case, or by way of a plan of water management in this case. This Court notes that the opinion in *WAS* did not refer to or articulate a reliance upon or relationship to the fact there were rules in place in Division 1.

231. At least one Objector argued that the Court should not approve a plan of water management until there are rules and regulations. Applicant and the other Supporters including the State Engineer counter that the Court should permit the start of this Subdistrict No.1 before the adoption of rules and regulations governing existing withdrawals as another logical and reasonable "step" in the process of integration of groundwater and surface water and to begin the important task of restoring the aquifers and building a sustainable basin. In addition, Supporters note that the absence of rules and regulations is not a problem because the State Engineer has ample authority under

section 37-92-502(1) “to issue such orders as are necessary to implement the provisions of section 37-92-501.” The Court agrees that it can approve a plan of water management without rules in place, but the Court will not limit the terms and conditions it may impose in conjunction therewith when the terms are required to meet the requirement of the 1969 Act and the Constitution.

232. Supporters also argue that they have relied upon the fact that prior to the Supreme Court opinion in *WAS*, it was the State Engineer’s consistent interpretation that his authority under section 37-92-501 was limited to requiring the replacement of depletions from pumping that occurred after the rules and regulations went into effect. Supporters point to the precedents set in Divisions 1 and 2 where rules had been adopted and also point to the views of the past and present State Engineers that replacement should begin from the adoption of rules or from the approval of a plan of water management.²⁵ See e.g. testimony of Jim Hall, Division Engineer, and S. Cuthbertson, Assistant State Engineer, note 3 *supra*. This interpretation is consistent with both the water court’s practice and the State Engineer’s practice in Water Division No. 1 from March 15, 1974, until the *WAS* decision.

233. Supporters and Farming Technology now suggest that because the *WAS* decision presents a new rule of law, it ought to have limited retrospective application, and that applying equitable principles to the circumstance, Subdistrict wells should not be required to replace on-going depletions from pumping that occurred prior to the adoption of SB 04-222. They argue that Senate Bill 04-222 authorized plans of water management for the first time and specified the standards for these plans. They argue that SB 04-222 made it clear that the water users in the San Luis Valley no longer could rely solely upon the 60-40 Agreement for the replacement of injurious depletions. Therefore, the Supporters and Farming Technology propose that the Court could reasonably exercise its discretion to require the Subdistrict to replace the on-going depletions from pumping by Subdistrict Wells from 2005 and thereafter. The Court considers this proposal and weighs the equities and principles involved in a section below.

234. Supporters also argue that *WAS* involved interpretation of the augmentation statute and that the statutory provisions for a plan of water management can be read to have a different standard for protection of senior water rights. The Court disagrees. The statutory goals underlying subdistrict plans for water management are the same as the statutory goals for the augmentation plan at issue in *WAS*.

²⁵ It is true that in previous instances in which it could have been argued that the Constitution requires the replacement of depletions caused by previous pumping, no such requirement has been imposed. Mr. Wolfe testified that the *Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado* (July 6, 1994) (“Division 2 Use Rules”) did not require replacement of lagged depletions caused by pumping prior to the promulgation of the Division 2 Use Rules. *Testimony of Dick Wolfe* (Oct. 7, 2009). The Division 2 Use Rules were promulgated under section 37-92-501 and approved by the Division 2 Water Court. See also *Alamosa-La Jara Water Users Ass’n v. Gould*, 674 P.2d 924 (Colo. 1983).

235. The statutes governing plans for augmentation “reflect the intent of the General Assembly ... to promote maximum development and use of Colorado's water resources while at the same time ensuring the protection of established water rights.” *Danielson v. Castle Meadows, Inc.*, 791 P.2d 1106 (Colo. 1990), at 1113. Section 37-92-305(3), (5), and (8) provides the statutory standards for approval of augmentation plans, and the focus for approval is on whether the plan adequately protects the rights of senior appropriators. At the core of any plan of augmentation is the requirement to protect senior surface rights. Plans for augmentation in general allow a water user to use water out of priority only if injury to holders of senior water rights is avoided. *Cache La Poudre Water Users Ass'n v. Glacier Meadows*, 191 Colo. 53, 61, 550 P.2d 288, 294 (1976); *Colorado Water Conservation Board v. City of Central*, 125 P.3d 424 (Colo. 2005).

236. Although the provisions of section 37-92-501(4)(c) read very differently from the statutory language governing augmentation plans that was at issue in the *WAS* case, the underlying goal of the statute is the same as the goal of the augmentation statute: to prevent material injury to senior water users while allowing out-of-priority diversions to maximize beneficial use of water. Section 37-92-501(4)(c) provides for the creation of plans of water management as an alternative way to allow such out-of-priority pumping. The history of the 1969 Act and SB 04-222 above, demonstrates that the General Assembly intended such subdistrict plans of water management to be a more flexible and comprehensive way to address the stresses on our over-appropriated basin. No words in SB 04-222 suggest that such plans should not address the material injury to senior water rights as completely as would be required in an augmentation plan. In fact, section 37-92-501(4)(a) requires that a plan of water management which allows the continued pumping of underground water may only be approved if it is “consistent with preventing material injury to senior surface water rights.” Accordingly, even though the *WAS* decision construed the statutory provisions for an augmentation plan, rather than a plan of water management, its analysis and conclusion apply in the current case because the goal behind the statutory provisions for a plan of water management and the statutory provisions for an augmentation plan are the same.

237. Supporters nevertheless argue that the *WAS* analysis should not apply to this case because this Court has previously ruled that a plan of water management is not a plan for augmentation and the requirements of section 37-92-305 do not apply to the Amended Plan of Subdistrict No. 1:

The Objectors argue that nothing short of the level of detail contained in a judicially decreed plan for augmentation is sufficient to comply with Colorado law and the Colorado Constitution. The definition of a plan of water management in section 37-92-501(4)(c) clearly distinguishes the two and provides a plan of water management may include a plan of augmentation but they are not the same.

February 2009 Order, at ¶ 209.

238. In determining that the statutory provisions governing plans of water management and plans of augmentation serve the same statutory and constitutional goals, the Court is not saying they are the same thing. Rather, they are two different methods of achieving the same goals. As this Court also said in the February 2009 Order:

174. This Court has previously found that SB 04-222 explores and clarifies the “policy of maximum flexibility that also protected the constitutional doctrine of prior appropriation,” quoting *Empire Lodge Homeowners' Ass'n v. Moyer*, 39 P.3d 1139, 1150 (Colo. 2001). “SB 04-222 allows the State Engineer and water users to seek creative solutions to the problems of overappropriation in order to protect senior surface and groundwater rights and the Rio Grande Compact obligation.” “SB 04-222 seeks to protect senior rights and allow the full economic development of the water resources in the Rio Grande Basin in a way that is sustainable for future generations.” Findings of Fact, Conclusion of Law, Judgment and Decree, Case No. 04CW24, at p. 165.

175. The Subdistrict Plan has as its objective the optimum use of water consistent with the preservation of the priority system of water rights, as required by section 37-92-501(2)(e). The Plan promises to replace injurious stream depletions from groundwater withdrawals by Subdistrict wells. These aims are entirely consistent with statutory and constitutional law in this state.

239. Whether in Division 1 or 3, and whether a plan of augmentation or a plan of water management, any proposal that allows junior wells to pump must protect senior water users because the 1969 Act sets out a “policy of maximum flexibility that also protected the constitutional doctrine of prior appropriation.” *Empire Lodge, supra*. Section 37-92-501(4) and section 37-92-303, 305 (3) and (4) are alternative ways the General Assembly has created to allow optimum utilization of our water resources subject to the protection of the senior water rights.

240. As the Supreme Court summed up in WAS:

.... the water court's decision to condition operation of WAS's augmentation plan on replacement of pre-2003 depletions that have a continuing effect on surface water conditions is supported by the language of section 37-92-305 as well as the 1969 Act's purpose of integrating groundwater into the surface water priority system without causing harm to senior vested rights.

241. Supporters argue the WAS dispute is further distinguished from the current case because Water Division 1 is subject to a specific statutory requirement

passed by the General Assembly regarding replacement of past depletions under plans for augmentation in Division 1:

(b) As to decrees for plans for augmentation entered in water division 1 on or after August 5, 2009, the plan shall not require the replacement of out-of-priority depletions currently affecting the river caused by pumping that occurred prior to March 15, 1974. HB 09-1174 (§ 37-92-305 (8)(b))

242. This provision obviously does not apply to Water Division 3. The statutory reference to March 15, 1974, is a reference to the date rules and regulations were enacted in that division. Supporters argue that the Court should infer from this language a legislative intent that plans of augmentation and plans of water management are not required to replace depletions caused by pumping that occurred before rules and regulations or a plan of water management are adopted. If that is what the General Assembly meant, however, the General Assembly could have said that augmentation plans (and plans of water management) can only be required to replace depletions occurring after the adoption of rules and regulations. It did not do so. Rather, it sought to put all water users in Division 1 on an even playing field and thus picked the date rules were affective in that division. It does signal that the General Assembly believes it can place some limit on the replacement of depletions required under the circumstances in a particular basin. The 1974 date for Division 1 is intended to avoid inequities to those well owners who already have augmentation plans.

243. For the reasons set out above, this Court reads the Supreme Court opinion in *WAS* to underscore the discretion of the water courts to impose terms and conditions requiring replacement of lagged depletions as it balances the principles discussed above to allow maximum utilization and integrate surface and groundwater uses in a manner consistent with the prior appropriation doctrine.

8. Weighing and Applying the Competing Goals of the 1969 Act

244. The Court turns to the application of the principles discussed above to the proposed Amended Plan before the Court. How should the Court balance the competing goals of the 1969 Act and the Colorado Constitution in determining if the Court can or should require less than complete replacement of lagged depletions or allow the phase-in of full replacement over time as occurred in Divisions 1 and 2.

245. The Supreme Court expressly approved this Court's ruling that it was constitutionally permissible to phase in regulations, as was the case with the Rules Governing New Withdrawals in the Confined Aquifer, 04CW24. See, *Simpson v. Cotton Creek Circles, LLC*, 181 P.3d 252 (Colo. 2008). This Court found there was a rational basis for approaching full integration of surface and groundwater one step at a time. This Court held in the February 2009 Order that this Subdistrict is similarly not responsible for all the requirements of 501(4) and that approving the first subdistrict is another step toward complete management of the basin. Each step must be evaluated in the context of the all the steps taken and to be taken, such as the future adoption of

rules and regulations governing existing withdrawals from the Confined and Unconfined Aquifers, the existing Rules Governing New Withdrawals from the Confined Aquifer, the Rules Governing the Measurement of Ground Water Diversions (2005CW12), and the creation of additional subdistricts.

246. As the Court evaluates the “step” represented by the Amended Plan for Subdistrict No.1, the Court finds that with regard to replacement of past depletions the Supporters have made no convincing argument to distinguish the circumstances of the plan of augmentation in WAS from the circumstances presented by the proposed Amended Plan of water management in Division 3. It is true that Division 1 has had rules since 1974.²⁶ Similarly, Division 2 has had rules since 1973, and those rules were amended in 1994.²⁷ Had the rules for Division 3 been adopted in 1974, the legal landscape before this Court would be quite different. But the rules proposed were rejected. The Supporters state a truth in observing there are no rules governing existing wells, but a second truth is that it has now been forty years since the promise of the 1969 Act. What was a reasonable way to move forward in 1974 in Division 1, shortly after the 1969 Act was passed, in an environment where so much was yet to be learned about each basin, and what is reasonable forty years later with a solid scientific foundation of understanding of Division 3 are two different things.

247. The Court acknowledges and incorporates its prior findings in Case No. 04CW24 regarding the history of well development in the San Luis Valley, attempts by the State Engineer to promulgate rules and regulations, and the history of the efforts of the water users of the San Luis Valley to address well depletions to streams. See 04CW24 Decree ¶¶ 90-125. These substantial and sincere efforts by all parties to meet the goal of optimum utilization of the waters in the basin while protecting existing water rights have laid the foundation for the Subdistrict’s Amended Plan, and those steps have mitigated the depletions in the ways outlined above. At the same time, these efforts have fallen short of full protection of senior rights, as all parties acknowledge.

248. This Court said in its February 18, 2009 Order, that:

127. To the extent that the Plan fails to adequately detail how it will act to protect the senior surface water rights, it fails on both statutory and constitutional grounds. But there should be no misunderstanding the fact that this kind of Plan is exactly what the legislature intended to authorize and that the statutory framework for such plans is entirely consistent with both the constitution and with the *Water Right Determination and Administration Act of 1969*, C.R.S. § 37-92-101, *et seq.*

²⁶ Rules and Regulations Governing the Use, Control and Protection of Surface and Ground Water Rights in the South Platte River and its Tributaries (March 15, 1974)

²⁷ *Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado* (July 6, 1994) (“Division 2 Use Rules”)

249. There must be a rational basis not to require the maximum protection to senior water rights consistent with optimum use and sustainability. No such basis is before the Court. After forty years, we can fairly say that the very best efforts of many good people have failed to fully and fairly protect the senior surface rights. The RGDSS and its groundwater model paired with the statutory authority for subdistricts offers the best and fairest way to finally confront this issue and resolve it in a manner that allows the integration of all the water rights in a way that is economically sound and sustainable. This is not the time for a half-step that would be viewed by many as simply another delay tactic. The Court did not hear any evidence or argument that it would not be economically feasible to replace lagged depletions, only that it will delay the reduction of acreage and the restoration of the Unconfined Aquifer and the artesian pressure in the Confined Aquifer.

250. Even if not required by express statutory language or constitutionally, the Court concludes it is in this Court's discretion to require the replacement of lagged depletions and that there are good reasons to do so as described above. The Legislature's emphasis in SB 04-222 on preventing injury due to stream depletions was deliberate, and the legislature clearly meant to require the State Engineer to adhere to that standard in adopting rules and in approving the water management plans that the Legislature had just authorized.

251. In its consideration and approval of the Confined Aquifer rules in the 04CW24 Decree, this Court found, "Inevitably these tasks [consideration of security, reliability and flexibility] require a balancing of competing interests in order to formulate a 'sound and flexible integrated use of all waters of the state.'" *Id.*, at ¶ 464 (citing section 37-92-102(2)). See also, ¶¶ 467-469.

252. The "flexibility" granted to the State Engineer in the 1969 Act generally and the "wide discretion" given the State Engineer with regard to Division 3 is flexibility and discretion to be exercised to allow maximum beneficial use while protecting senior vested rights but not at their expense. As the Supreme Court states with regard to the augmentation plan in *WAS*:

Because of the difficulties associated with determining when, and to what extent, a groundwater depletion will have an injurious effect on surface waters, the 1969 Act provides water courts with a degree of flexibility to craft terms and conditions in augmentation plans. However, this flexibility is bounded by the requirement that operation of an augmentation plan may not cause harm to senior vested water rights or decreed conditional water rights.

253. This Court sees no reason or basis to distinguish the obligation owed to senior water rights under alternative methods of addressing injurious depletions.

Whether a junior right seeks to continue out-of-priority diversion by an augmentation plan or by a plan of water management, the requirement in the 1969 Act and the constitutional doctrine of prior appropriation require that all injurious depletions caused by out-of-priority pumping be replaced. The General Assembly's directives and the flexibility and discretion granted the State Engineer to deal with the unique conditions in Water Division No. 3, to limit the reduction of well usage to the minimum necessary and to support a collective effort by subdistricts to address well depletions are "bounded" by the obligation to protect the senior water rights from injurious depletions.

254. The proposed provision in the Amended Plan for immediate replacement of injurious stream depletions from current pumping and the proposal submitted after WAS proposing replacement of injurious depletions occurring after the formation of the Subdistrict in 2005 both fail to adequately address lagged depletions. Applying section 37-92-501 and the underlying constitutional principles to the specific circumstances of Subdistrict No. 1 in Division 3 requires the replacement of injurious depletions from past pumping as well as future injurious stream depletions caused by past groundwater withdrawal as a term and condition for approval of the Amended Plan.

255. The Court has examined the potential reasons that could be proposed that would justify less than full replacement of lagged depletions or which would make full replacement difficult, impossible or economically catastrophic. However, the following countervailing arguments are more persuasive:

- 1) It is forty years since the 1969 Act mandated integration of surface and groundwater.
- 2) It is eleven years since HB 98-1011 created the RGDSS as a foundation for integrated management.
- 3) It is six years since the historic SB 04-222 and its mandate for sustainable management of the basin.
- 4) The many steps, including the recharge decrees, exchange agreements, winter storage and the Closed Basin Project have diminished the burden for well owners by facilitating efficient Compact delivery and reducing the injurious stream depletions.
- 5) The foresight of these steps to minimize injurious depletions reduces the economic impact of requiring full replacement now.
- 6) The RGDSS groundwater model makes it possible to project all injurious depletions in a manner that is reasonably accurate, and the accuracy of the model's predictions will continue to improve over time.
- 7) Phasing in replacement made sense in the first years after the 1969 Act for the following reasons: (a) This was truly a new law; (b) There were real engineering difficulties; (c) There was a shortage of both engineers and hours in the day; and (d) There existed uncertainties as to the accuracy of what was occurring and the economic consequences that would follow.
- 8) For Division 3, now is the time to get the first subdistrict operating to see if it can deliver what it aspires to do.

- 9) While there are equities on both sides, the balance of equities favors the senior water rights.

For the reasons outlined above, the Court finds that the provisions of paragraph II.F of the Amended Plan fail to meet the requirements of sections 37-92-501(4)(a) and (b) due to the failure to replace all injurious depletions to senior water rights as they accrue. Below, the Court determines it is appropriate to approve the Amended Plan subject to several terms including a term and condition requiring full replacement of these lagged depletions as they accrue.

256. The Court further concludes that in light of the decision in *Well Augmentation Subdistrict of Central Colorado Water Conservancy Dist. v. City of Aurora*, 221 P.3d 399, 411 (Colo. 2009), the State Engineer was not acting reasonably and abused his authority by his approval the Amended Plan pursuant to section 37-92-501(4)(c). As outlined below, the Court believes it is appropriate for the State Engineer to review and reconsider the Amended Plan with the additional terms and conditions of the Court.

F. The Subdistrict Must Replace Injurious Depletions to Senior Surface Water Rights Resulting from Subdistrict Well Pumping, not Replace the Reduction in Evapotranspiration by Phreatophytes.

257. Throughout this case, Objectors have maintained that senior water rights are entitled to replacement of injurious stream depletions in time, place and amount. This is the law in Colorado. As the Supreme Court stated in *Well Augmentation Subdistrict of Central Colorado Water Conservancy Dist. v. City of Aurora*, *supra* at 410, “Plans for augmentation allow a water user to divert water out-of-priority ‘only if injury to holders of senior water rights is avoided.’ *Danielson v. Castle Meadows, Inc.*, 791 P.2d 1106, 1112-13 (Colo. 1990) (citing *Cache La Poudre Water Users Ass’n v. Glacier View Meadows*, 191 Colo. 53, 61, 550 P.2d 288, 294 (1974)).” In determining the amount of water that must be replaced, the Amended Plan relies upon calculations provided by the Rio Grande Decision Support System (“RGDSS”) and its groundwater model. The Objectors claim that this calculation improperly credits the Subdistrict wells with replacement water from the reduced consumption of water by phreatophytes when the water table is lowered and that this is in violation of section 37-92-501(4)(a). The Court disagrees.

258. It is appropriate that the Amended Plan use the RGDSS and its groundwater model to calculate such replacements. HB 98-1011 initiated the development of the Rio Grande Decision Support System as a solid scientific foundation with which to analyze and balance competing interests to formulate “sound and flexible integrated use of all the waters of the state.”²⁸ The developers of the RGDSS engaged in a comprehensive study of irrigated lands and land cover classifications including crop consumptive use with calibrated crop coefficients as well as a careful examination of the

²⁸ Section 37-92-102(2).

water consumption of meadows, marshes and phreatophytes. All of this allowed the developers of the RGDSS groundwater model to include and provide a calculation of evapotranspiration (“ET”) and evapotranspiration of groundwater (“ET_g”). See, 2004CW24, ¶¶ 240-250; 267-270.

259. One of the benefits of the RGDSS and its groundwater model is that it recognizes and seeks to understand the relationships between all of the environmental elements that come into play in this complex, non-linear system. The RGDSS groundwater model simulates the evapotranspiration of groundwater (ET_g) by subirrigated pastures and alfalfa and by non-irrigated native vegetation, including phreatophytes. The RGDSS groundwater model must simulate such evapotranspiration in order to accurately simulate the functioning of the hydrologic system and to accurately predict the depletion to surface streams caused by the operation of Subdistrict Wells. See Exhibits 98 and 107. The groundwater model seeks to account for all water that enters and leaves the system. The RGDSS includes a groundwater water budget and water balance of groundwater inflows and outflows depicted below ¶ 252 in 04CW24 which shows that native vegetation ET represented 28.7 % of the groundwater outflow during a 1990-98 study period.

260. In determining the quantity of existing depletions that must be replaced to prevent injury to senior surface water rights, the RGDSS groundwater model recognizes that one effect of raising or lowering groundwater levels is to increase or decrease, in a non-linear fashion, the amount of water consumed by phreatophytes. As Dr. Brendecke testified from his expert report, Exhibit 107, “This non-linear process is a fundamental aspect of the hydrology and vegetation of the Valley, and it exists with or without human intervention. It is represented in the RGDSS groundwater model because that model seeks to represent accurately all the important processes affecting the Valley aquifer system and groundwater budget. If the RGDSS groundwater model did not represent this process, it would not correctly represent stream depletions resulting from groundwater pumping. The reduction of native ET is a natural and unavoidable effect of groundwater withdrawal, but it is not a component of the Plan.”

261. Evapotranspiration by phreatophytes is a large portion of the water budget in the RGDSS groundwater model domain, and the reduction of this evapotranspiration by changes in groundwater levels is one of the principal non-linear aspects of the groundwater system in the San Luis Valley. This Court made numerous findings on this phenomena in 04CW24 based upon the testimony of Dr. David Cooper, who has studied and written extensively about this interaction between native vegetation and the groundwater table in the San Luis Valley. Conversely, some increase in evapotranspiration by phreatophytes inevitably occurs with increasing groundwater levels. Historically, groundwater levels in Subdistrict No. 1 have varied depending upon diversions of water into the Subdistrict from the Rio Grande, well pumping, and climatic conditions. See Exhibit 86. As described earlier, much of the water in the Unconfined Aquifer in and adjacent to the Subdistrict is the result of the importation of surface water from the Rio Grande (see Exhibits 21, 30, 77.1, 77.2, and 78) some of which may be consumed by phreatophytes, depending upon groundwater

levels. Phreatophytes inevitably have shared the water diverted and recharged or used for subirrigation over the years. These complex, nonlinear relationships are depicted in the RGDSS Groundwater Model Water Budget. You cannot alter any of the parts of the water budget without a non-linear effect upon the others. At least a portion of the reduction in consumption by phreatophytes can be seen as the wells simply pumping the water imported by the surface ditches into the Closed Basin rather than allowing it to be consumed by phreatophytes. See Exhibits 89.1, 89.2, 89.3, and 89.4. Groundwater pumping is one of the significant factors, but not the only factor, that causes changes in groundwater levels. See Decree 04CW24 at ¶¶ 251-271.

263. Because some reduction in evapotranspiration by phreatophytes inevitably occurs with declining groundwater levels, see Exhibit 107, a portion of the consumptive use by the existing, adjudicated water rights of the Subdistrict Wells will, under some groundwater conditions, be derived from groundwater that otherwise would be consumed by phreatophytes. It is not possible to simulate stream depletions accurately without accounting for this change in evapotranspiration by phreatophytes. In short, the groundwater model cannot function without taking phreatophyte consumption into account. Further, it is not possible to prevent this change in evapotranspiration by phreatophytes and, at the same time, to have fluctuations in groundwater levels caused by groundwater use.

264. The Objectors, however, argue that the provisions of section 37-92-501(4)(b)(III) require that the Amended Plan disregard reductions of water consumption by phreatophytes caused by the operation of the Subdistrict Wells. The Acequia Objectors' expert, Mr. Scott Mefford, testified that as a hydrogeologist he understood the replacement of existing depletions to mean the replacement of depletions to the hydrologic system, not solely to surface streams. He further testified that would be the standard that he would apply to any plans for augmentation he prepared on behalf of any of the clients he represented in this case. *Testimony of Scott Mefford* (Oct. 8, 2009). Based on Mr. Mefford's opinion and the language quoted above, the Objectors claim that the Amended Plan fails to comply with the requirements of section 37-92-501(4). However, during closing arguments the Acequia Objectors argued not that depletion to phreatophytes have to be replaced to the aquifer, but rather that reduction in phreatophyte ET could not be taken into account when determining stream depletions by Subdistrict Wells.

265. Section 37-92-501(4)(b)(III) requires that the State Engineer, in adopting rules pursuant to Section 37-92-501(4)(a), "not recognize the reduction of water consumption by phreatophytes as a source of replacement water for new uses or to replace existing depletions, or as a means to prevent injury from new water uses."

266. The purpose of Section 37-92-501(4)(b)(III) is to prohibit efforts to strip the land of phreatophytes and other vegetation and then to claim that this makes available for appropriation the water which was consumed by the plants. See, *Southeastern Colorado Water Conservancy District v. Shelton Farms*, 17 Colo. 181, 529 P.2d 1321 (1974). Allowing such conduct would risk creating moonscapes and would deprive the

people of Colorado of the very environment we so treasure. This was addressed in *Alamosa-La Jara v. Gould*, 674 P.2d 914 (Colo. 1984), at 935, where the Supreme Court stated:

[T]hat the policy of maximum utilization does not require a single-minded endeavor to squeeze every drop of water from the valley's aquifers. Section 37-92-501(2)(e) makes clear that the objective of "maximum use" administration is "optimum use." Optimum use can only be achieved with proper regard for all significant factors, including environmental and economic concerns.
(Citations and footnote omitted).

267. The Amended Plan, however, does not violate Section 37-92-501(4)(b)(III) because it does not propose to use water derived from evapotranspiration salvage either as a source of replacement water or to replace existing depletions. See Exhibit 107. Nor does the Amended Plan seek to eradicate phreatophytes to provide a source of water to replace the existing injurious depletions to senior surface water rights. Rather, the Amended Plan proposes to replace the injurious stream depletions caused by operation of the Subdistrict Wells with water rights to be purchased or leased by the Subdistrict or in the manner permitted by section 37-92-501(4)(b)(I)(B).

268. As previously stated by this Court, SB 04-222 provides a series of interrelated principles for management of Water Division 3 based upon the best understanding of the hydrogeology of the basin at this time. SB 04-222 starts out with the affirmation that:

[I]n recognition of the unique geologic and hydrologic conditions and the conjunctive use practices prevailing in division 3, the state engineer shall have wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights. Any reduction in underground water usage required by such rules shall be the *minimum necessary* to meet the standards of this subsection (4). . . .

(Emphasis supplied).

269. This statement affirms that prevention of injury to senior surface water rights is one key principle of water management in Water Division 3. A second key principle is that under the unique geologic and hydrologic conditions and the conjunctive-use practices prevailing in Water Division 3, the reduction in groundwater usage shall be the *minimum necessary* to accomplish this goal. Stated another way, the General Assembly has directed that in Water Division 3 the maximum amount of historic groundwater usage be allowed to continue consistent with prevention of injury to senior surface water rights.

270. In SB 04-222 the General Assembly also provided explicit standards for management of the aquifers in Water Division 3:

In regulating an aquifer or system of aquifers in division 3, the state engineer shall apply the following principles:

(I) Use of the confined and unconfined aquifers shall be regulated so as to maintain a sustainable water supply in each aquifer system, with due regard for the daily, seasonal, and long-term demand for underground water;

(II) Unconfined aquifers serve as valuable underground water storage reservoirs with water levels that fluctuate in response to climatic conditions, water supply, and *water demands*, and such fluctuations *shall be allowed to continue*;

(III) Fluctuations in the artesian pressure in the confined aquifer system have occurred and will continue to occur in response to climatic conditions, water supply, and *water demands*. . . .

§37-92-501(4)(a), C.R.S. (Emphasis added)

271. This Court previously addressed the meaning of “sustainable” under part (I) of section 37-92-501(4)(a). See 04CW24 Decree, at ¶¶ 394-431. Parts (II) and (III) of section 37-92-501(4)(a) contain equally important principles for water management in Water Division 3 that apply to this case. First, the General Assembly has recognized that water users in Water Division 3 use the Unconfined Aquifers as valuable underground storage reservoirs; that the water levels in the reservoirs have historically fluctuated in response to climatic conditions, water supply, and water demands; and that such fluctuations shall be allowed to continue. Thus, the principle for water management adopted by the General Assembly is that fluctuations in groundwater levels must be allowed to continue, including fluctuations caused by water demands, which plainly includes fluctuations caused by groundwater use. The same principle holds true for the Confined Aquifer under subsection (III), where fluctuations in artesian pressure caused by water demands, i.e. groundwater use, shall be allowed to continue, subject to limits on the range in fluctuations in artesian pressures.

272. The Objectors argue that the fact that pumping of Subdistrict Wells causes a reduction in evapotranspiration by phreatophytes logically means that the amount of that reduction in evapotranspiration must be replaced to the aquifer system. If the Court approved this reasoning, the Court would have to construe the term *existing depletions* to mean depletions to phreatophytes, which, in turn, would require the Subdistrict to replace to the Unconfined Aquifer the amount of reduction of phreatophyte evapotranspiration from existing groundwater uses. The Court finds this interpretation to be clearly inconsistent with both the language and purposes of SB 04-222. As the Supreme Court stated in *Southeastern Colo. Water Conservancy District v. Shelton*

Farms, Inc., 529 P.2d 1321, 1327 (Colo. 1974), “There must be a balancing effect, and the elements of water and land must be used in harmony to the maximum feasible use of both.” This is what SB 04-222 seeks to accomplish in Division 3, a sustainable basin.

273. The Court's primary responsibility in any statutory analysis is to give effect to the legislative intent motivating the enactment of the statute. *People v. Norton*, 63 P.3d 339, 343 (Colo. 2003). In construing an unambiguous statute, the Court must assume that the entire statute is intended to be effective; that a just and reasonable result is intended; and that a result feasible of execution is intended. § 2-4-201, C.R.S. (2009). The Court must construe statutory provisions as a whole, giving effect and meaning to every word and harmonizing potentially conflicting provisions, if possible. *See Bd. of County Comm'rs v. Vail Assocs.*, 19 P.3d 1263, 1273 (Colo. 2001). When there are a number of interrelated statutory sections, the Court must endeavor to give consistent, harmonious, and sensible effect to the statutory scheme as a whole. *Martin v. People*, 27 P.3d 846, 851 (Colo. 2001). The Court must “construe each provision to further the overall legislative intent behind the statutes.” *Martin*, 27 P.3d at 851. Under the Objectors’ interpretation, it is not possible for the entire statute to be effective. If the Court required the Subdistrict to replace to the Unconfined Aquifer the amount of reduction in evapotranspiration by phreatophytes caused by Subdistrict Wells, the Subdistrict would not be able to use the Unconfined Aquifer as a valuable storage reservoir. In SB 04-222, the General Assembly expressly acknowledges the existence of the unique conjunctive-use practices in Water Division 3, and those conjunctive-use practices are based upon using the Unconfined Aquifer as a valuable reservoir to provide a water supply both from stored water and in times of drought or other shortage. The General Assembly also knew that changes in groundwater levels in the Unconfined Aquifer would change the amount of evapotranspiration by phreatophytes. Nevertheless, the General Assembly directed that water levels be allowed to fluctuate in response to water demands.

274. With respect to the original plan, this Court found in the February 2009 Order that:

136. The . . . Plan treats the Unconfined Aquifer as a valuable underground water storage reservoir and, while seeking to recover the water levels in the Unconfined Aquifer, allows water levels to fluctuate in the future in response to climatic conditions, water supply and water demand. *See Knox testimony, October 30, 2008*. These aims of the Plan are consistent with and flow from the “wide discretion of the State Engineer when adopting rules governing use of the underground water in Division No. 3” §37-92-501(4)(a), C.R.S.

137. Costilla Ditch suggested that the fee structure did not accomplish a reduction of pumping in drought years. (footnote omitted) This argument, however, ignores section 37-92-501(4)(a)(II) which specifically recognizes that the Unconfined Aquifer(s) serve as valuable storage reservoirs with water levels that fluctuate in response

to climate conditions, water supply, and water demands, and that such fluctuations shall be allowed to continue. The statute mandates the use of the aquifer as an underground reservoir. The point of a management plan is to manage so that water use is optimized and to ensure water when it is needed. Agricultural water users are especially dependent upon underground water during a drought. Thus, in a drought the legislature seeks to ensure both water for the senior surface rights and to allow wells to pump to optimize water use. Managing the Unconfined Aquifer as a reservoir is a means to accomplish this, and the Plan is clear in its intent to do so. This is consistent with and meets the requirements of Section 37-92-501(2).

275. The Objectors' interpretation of section 501(4)(b)(III) is inconsistent with the General Assembly's intention that the water levels in the aquifers be allowed to fluctuate in response to water demand. Such an interpretation would prevent the entire statute from being effective and would render infeasible the use of the Unconfined Aquifer as a reservoir. For these reasons, the Objectors' interpretation cannot be adopted.

276. The Objectors also ask the Court to interpret the phrase *existing depletions* to mean that reductions in groundwater consumption by phreatophytes from Subdistrict Well pumping must be excluded when computing stream depletions by Subdistrict Wells. Stated another way, the Objectors argue that SB 04-222 requires that the amount of reduced groundwater consumption by phreatophytes must, in effect, be added to the Subdistrict Well net groundwater consumption for purposes of determining stream depletions. The evidence in this case makes clear that the result of this approach would be a computed stream depletion that exceeds the actual injurious stream depletions caused by Subdistrict Wells. This interpretation is inconsistent with section 501(4)(a), which establishes that any reduction in groundwater usage shall be the minimum necessary to prevent injury to senior *surface water* rights, and section 501(4)(a)(IV), which requires that wells replace injurious *stream depletions*. The purpose of the statute is to allow groundwater use to continue consistent with prevention of injury to senior surface water rights. Thus, to render the entire statute effective, to have a just and reasonable result, and to have a result that is feasible of execution, the phrase *replace existing depletions* must be understood to refer to the replacement of actual injurious depletions to surface streams in order to protect senior surface water rights, and not to include a requirement to replace to the surface stream more than the actual injurious stream depletions.

277. Adopting the Objectors' position would also produce a wasteful, absurd and unfair result. Providing more water for phreatophytes so that they will consume the same amount they would in the absence of well pumping does not optimize beneficial use, reduce stream depletions, or make more water available to replace stream depletions. It merely fosters more phreatophyte growth which benefits neither surface nor groundwater users. Likewise, requiring existing groundwater users to replace to the stream more than the actual injurious stream depletions would result in an unwarranted

windfall to surface water rights and a corresponding unwarranted penalty on existing groundwater users.

278. This Court has previously addressed the question of whether the General Assembly intended to create vested water rights for phreatophytes and concluded it did not. See 04CW24 Decree at ¶ 140. The Objectors' argument in this case would, in effect, create a vested water right for phreatophytes by requiring that ET by phreatophytes not be reduced as a result of groundwater pumping, or at the very least to be fully replaced. As explained above, such an interpretation would be inconsistent with the purposes of section 37-92-501(4).

G. The Fact that the Subdistrict has not Identified Sources of Replacement Water is not a Bar to the Court's Approval of the Amended Plan.

279. Acequia Objectors have contended from their first *Statement of Opposition* that the Original Plan, and now the Amended Plan, inadequately describe the sources of replacement water and that the statutory provision for retained jurisdiction is not a vehicle to remedy, after the fact, the failure to demonstrate an absence of injury at the outset in the manner required for a plan of augmentation under section 37-92-305.

280. In previous sections, the Court has made clear its view that augmentation plans and plans of water management are held to the same standard with regard to protection of senior water rights from injurious depletions in time, place and amount. However, augmentation plans and plans of water management are not the same thing, and are governed by different statutory frameworks.

281. Under the provisions of section 37-92-305, the applicant for an augmentation plan must provide evidence that the proposed change will not result in injury to senior water rights. See, *In re Application for Water Rights*, 799 P.2d 33, 37-38 (Colo. 1990). In an application for an augmentation plan (or change of use) the applicant must present specific facts concerning the nature and timing of the injury and the amount and timing of the augmentation water the applicant will provide. The water court must consider these "facts and appropriate legal standards" and determine the adequacy of a plan of augmentation under section 37-92-305. *Weibert v. Rothe Bros, Inc.*, 200 Colo. 310, 618 P.2d 1367 (Colo. 1980). Objectors cite the failure of the Amended Plan to provide this kind of certain description of the injury and the means of remedy as the central reason why they believe the Amended Plan fails to be a "comprehensive and detailed plan" as required by section 37-48-126(1), and they argue that the Amended Plan is vague and thus fails to meet the fundamental requirement that a water decree be definite and complete.

282. The Acequia Objectors are correct that the Amended Plan does not provide the kind of evidence of "no injury" which is required in an application for an

augmentation plan.²⁹ But, the statutory provisions for plans of water management do not require such plans to provide such evidence. In the February 2009 Order, this Court observed that the statutory provisions for a plan of water management are significantly different from the provisions governing approval of a change of water right or plan of augmentation. The General Assembly defined a plan of water management as:

a cooperative plan for the utilization of water and water diversion, storage, and use facilities in any lawful manner, so as to assure the protection of existing water rights and promote the optimum and sustainable beneficial use of the water resources available for use within the district or a subdistrict, and may include development and implementation of plans of augmentation and exchanges of water and groundwater management plans under section 37-92-501(4)(c).

§ 37-48-108(4), C.R.S. This definition acknowledges that a plan for water management may include a plan for augmentation but is not the same as a plan for augmentation.

283. Given the statutory steps necessary to enable a subdistrict to be approved, obtain funding and begin to operate, requiring a “no injury” showing comparable to that for an augmentation plan before the Subdistrict has any resources would doom the proposal to failure and would make the provisions of SB 04-222 providing for such subdistrict plans meaningless.

284. Rather, the statutory framework for plans of water management empowers the board of managers and the water users participating in a plan with the opportunity to creatively manage their Subdistrict. The statute leaves open the appropriate methodology for determining what injurious depletions are occurring as a result of subdistrict pumping and how these will be remedied. This Court returned the Original Plan to the board of managers for failure to make replacement of injurious depletions the first priority of the Subdistrict, and for failure to document the methodology by which the Subdistrict would determine injurious depletions and replace them. The Amended Plan is now before the Court with a series of Appendices which set out the

²⁹ The features of a judgment and decree for change of water right or augmentation plan are described in *Farmer's Reservoir and Irrigation Co. v. Consolidated Mut. Water Co.* 33 P.3d 799, (Colo.2001) as follows:

As a result of these amendments, the current version of section 304(6) addresses six features of a judgment and decree involving changes of water rights and augmentation plans: (1) the judgment and decree for changes of water rights and augmentation plans must contain a retained jurisdiction provision for reconsidering the question of injury to the vested rights of others; (2) the water judge has discretion to set the period of retained jurisdiction; (3) the water judge has discretion to extend the period of retained jurisdiction; (4) the water judge's findings and conclusions must accompany the conditions setting forth the period of retained jurisdiction; (5) all provisions of the judgment and decree are appealable upon their entry, including those relating to retained jurisdiction or extension of retained jurisdiction; and (6) the water judge has discretion to reconsider the injury question.

“comprehensive and detailed” process and method by which the Subdistrict will be guided. These documents provide a transparent process with structured annual presentation and review of specific replacement sources for the estimated injurious stream depletions. Therefore, the Amended Plan’s failure to contain the kind of provisions required for approval of an augmentation plan does not bar the Court’s approval of the plan.

285. Objectors argue that the Court should not approve the Amended Plan because the plan’s failure to identify sources of replacement water, as well as other aspects of the Amended Plan show that it lacks the specificity necessary in a water decree. They cite a long line of cases holding that “a decree should be complete and certain in itself.” *Hinderlider v. Canon Heights Irr. & Reservoir Co.*, 117 Colo. 183, 190, 185 P.2d 325, 328 (Colo. 1947). See also, *Farmers High Line Canal and Reservoir Co. v. City of Golden*, 975 P.2d 189, 198 (Colo. 1999). SB 04-222, however, does not require that a plan of water management contain the same specificity as would be necessary to allow the Court to grant a decreed water right. Rather, as the Court explained in the February 2009 Order (¶¶208-210), the General Assembly has specifically chosen not to require that kind of detail in the plan so long as the plan provides a framework for the ongoing determination of injury and the remedy for that injury, including provision for notice, an opportunity to be heard and a clear means of protesting to both the State Engineer and the water court.

286. Objectors also cite the Supreme Court’s opinion in *Empire Lodge v. Moyer*, 39 P.3d 1139 (Colo. 2001), as prohibiting the Court from approving the Amended Plan. In that case the Supreme Court held that the State Engineer had no statutory authority to permit “temporary substitute supply plans” in Division 1 except in conjunction with an application for an augmentation plan pursuant to statute. A plan of water management, such as the Amended Plan before this Court, however, is a creature of a statute enacted after *Empire Lodge* was decided. The fact that this statute does not require the Court to engage in the kind of analysis the augmentation statute requires of the Court, demonstrates that such analysis is not required to approve a plan of water management.

287. Under the Amended Plan, specific replacement sources must be addressed in each year’s Annual Replacement Plan. The Supporters have acknowledged and testified that the Amended Plan can only operate successfully if the annual replacement sources are available and sufficient to replace the injurious stream depletions. See *Testimony of Steve Vandiver* (Sept. 29, 2009); *Testimony of Mike Sullivan* (Oct. 7, 2009). If sufficient replacement sources are not identified or available, and the supporting documentation is not included in the Annual Replacement Plan, the State Engineer cannot approve the Annual Replacement Plan, and the protections of the Amended Plan will not be available to the Subdistrict Wells. *Testimony of Mike Sullivan* (Oct. 7, 2009). Section 6 of Appendix 1 to the Amended Plan sets forth the information that must be submitted annually to the State Engineer to accomplish this purpose.

288. If the Annual Replacement Plan submitted to the State Engineer does not provide for adequate replacement water, the State Engineer, Mr. Dick Wolfe, testified that he would order the Subdistrict to comply with the terms of the Amended Plan; and if it did not, that he would seek to invoke the retained jurisdiction of the Court. See *Testimony of Dick Wolfe* (Oct. 7, 2009). In such circumstances, all wells included in the Subdistrict would be subject to curtailment once rules and regulations are in place. Moreover, if the operation of the Amended Plan is not in compliance with the requirement to provide replacement water, the Amended Plan could be found to have failed, which would end the ability of the Subdistrict to tax and to work on its other stated means to attain a sustainable basin. These are meaningful, real consequences that are all subject to the retained jurisdiction of this Court.

289. The Court finds and concludes that the requirement in the Amended Plan for review and approval of an Annual Replacement Plan is an appropriate procedure and protects the interests of other water users within the San Luis Valley. The Court notes that this process is similar to the augmentation plan review and approval process in Water Division No. 2, as testified to by Mr. Bill Tyner in the first trial phase and discussed in the Court's February Order. See February 2009 Order, at ¶¶ 205 – 207.

290. The Amended Plan and current water statutes contain important additional protections for senior water users. Because it will be necessary for all sources of replacement water, once identified and acquired, to become legally qualified to be used as replacement water in conjunction with the Amended Plan, existing statutory procedures are sufficient for providing notice of these proceedings. To the extent water rights are acquired for use in a replacement plan for which a change of water rights is required, section 12 of Appendix 1 of the Amended Plan specifically provides that appropriate change of water rights proceedings will be initiated. All parties interested in the process and the State will receive the appropriate resume notice and will be entitled to file statements of opposition or to otherwise participate in any changes of water rights proceedings. In addition, the Subdistrict will have to comply with the procedures contained in section 37-92-308, addressing substitute supply plans, and section 37-92-309, addressing interruptible supply agreements. These statutes make even the temporary use of replacement supplies subject to significant notice and opportunity for hearing. Taken together, the obligations to change water rights which will be relied upon as permanent replacement sources and/or to comply with the provisions of the substitute water supply planning or interruptible supply planning process provides adequate notice to the Objectors and all other interested parties of the Subdistrict's plans for replacement sources.

291. Furthermore, the Court notes that the District and the Subdistrict are political subdivisions of the State of Colorado, § 37-48-101.3, and are thus subject to the Colorado Open Records Act. See § 24-72-200.1 *et seq.* The Annual Replacement Plan will be a public document maintained by the District and the Subdistrict that will be available for inspection under the Colorado Open Records Act. *Id.* Finally, the Court recognizes that it will permanently retain jurisdiction over the Subdistrict and its Amended Plan under section 37-92-501(4) and section 37-48-124(2). In addition, to

assure maximum transparency, the Court orders that the proposed Annual Replacement Plan submitted to the State Engineer for approval be simultaneously filed with the Court and posted on the website of the RGWCD, in order to ensure the Court's ongoing supervision of the implementation of the Plan of Management and to provide easy public access to the document.

H. Challenges to the Subdistrict's Contract Authority

292. The Acequia Objectors, Mr. Ramstetter and Mr. Atkins assert that the Amended Plan violates Colorado law by failing to include sufficient terms and conditions regarding the Subdistrict's "contract authority" to provide replacement water to wells not specifically described in the Amended Plan. In Section II.C., the Amended Plan acknowledges that it will be necessary to adopt rules governing the terms, conditions and limitations under which such contracts may occur. It is undisputed that the Subdistrict rules to permit such contracts have not yet been drafted, and that contracts with non-Subdistrict wells cannot occur absent the adoption and approval of such rules. The Court specifically finds and determines that the Subdistrict may not contract with the owners of any non-Subdistrict wells until it has promulgated appropriate rules.

293. The organizers of Subdistrict No. 1 did not include property served by wells used for purposes other than irrigation. Amended Plan, at § II.A. This was, in part, to meet the requirements of section 37-48-123(3) and also due to the Subdistrict's focus upon recovery of the aquifers and remedy for injurious stream depletions from the pumping of irrigation wells within the Subdistrict. Within the Subdistrict's boundaries and in close proximity to the Subdistrict, however, there are numerous wells which are not currently included within the Subdistrict or its Amended Plan. *Testimony of Carla Worley* (Sept. 29, 2009). These wells are owned by the Federal Government, by State government, by municipalities, school districts and commercial establishments. Although none of these were included within the Subdistrict, their depletions need to be addressed. Allowing these entities to contract with the Subdistrict to perform the complicated analysis of injurious depletions and to provide the source of replacement water is logical, efficient and desirable. In fact, to require these scattered wells to attempt to file individual plans of augmentation would be contrary to the overall goals of SB 04-222.

294. Dr. Schreüder, Mr. Slattery and Dr. Brendecke are unanimous in the opinion that the current RGDSS groundwater model is not an appropriate tool to analyze the stream depletions from most individual wells or from most groups of small numbers of wells. *Testimony of Willem Schreüder* (Oct. 1, 2009); *Testimony of Jim Slattery* (Oct. 6, 2009); *Testimony of Chuck Brendecke* (Oct. 6, 2009). If, however, the wells can contract with the Subdistrict, their effects on senior surface water rights and groundwater levels can be appropriately accounted for and remedied under the procedures of the Amended Plan.

295. All of these potential contract wells will be obligated, by the State Engineer's planned groundwater regulations, to address their injurious impact on senior surface water rights and on the aquifer systems of the San Luis Valley. The Court finds that Section II.C. of the Amended Plan represents a reasoned effort by the board of managers to provide sufficient flexibility to allow those wells to contract with the Subdistrict for the replacement of their injurious stream depletions and to meet other requirements of law. The Court also finds that the inclusion of these wells benefits the senior surface rights since it will result in replacement of injurious depletions from these wells.

296. In this case, the Court finds that there is no factual or legal basis to conclude that Section II.C. "contract authority" is inherently unlawful. The General Assembly contemplated that there could be such contractual arrangements. See § 37-92-501(4)(b)(I), C.R.S. (2009). In comparing sections 37-48-108(3), 37-48-130, 37-48-134, and 37-48-156(1)(a), it is also clear that the General Assembly intended that subdistricts should have the opportunity to contract with a variety of entities in order to carry out the purposes for which the subdistrict was formed. Therefore, the Court finds that there is no legal impediment to the implementation of Section II.C of the Amended Plan once the Subdistrict adopts appropriate rules regarding the inclusion of contract wells.

297. To that end, the Court directs that within six (6) months of the entry of this Order, the Subdistrict's board of managers shall provide the initial public notice required for the adoption of the rules to effectuate Section II.C. of the Amended Plan and to proceed with the adoption of these rules in accordance with the provisions of sections 37-48-101, *et seq.* The Court specifically determines that the adoption of rules effectuating the contract authority by the board of managers must occur with notice and opportunity for a public hearing and that any judicial challenge thereto should be in the district court authorizing the formation of the Subdistrict (Case No. 06CV64) and under the Court's continuing exclusive jurisdiction under section 37-48-124(2), over lands and other property proposed to be included or affected by the Subdistrict, and not pursuant to the retained jurisdiction of the Water Court in this matter under section 37-92-501(4)(c). The Court further orders that a copy of any rules adopted pursuant to this decree be filed both with the Division Engineer and with the Court at the time of their adoption for purposes of permitting the Court to continue its supervisory responsibilities under the retained jurisdiction described elsewhere in this decree.

298. Having determined that the contract authority provided in the Amended Plan is legally sufficient (after the above-discussed rules have been adopted), the Court relies upon the testimony of Dr. Schreüder and Mr. Slattery, who defined the appropriate technical conditions under which non-Subdistrict Wells could be analyzed as part of the overall Annual Replacement Plan in order to ensure that any injurious stream depletions which they might cause would be fully replaced. Among the requirements would be the identification of the specific location of the well, the amount of and timing of well pumping, the level of consumption associated with the well withdrawals, all of the information provided with regard to any well included in the

Amended Plan, and the feasibility of determining the effects of pumping such well in conjunction with the Subdistrict Wells. The technical advisory committee must document its conclusion that the inclusion of a particular well by contract can be accomplished and specifically state whether or not it will require recalculation of response functions. If new response functions must be calculated, doing so shall be a prerequisite for the contract to be effective. In the first year of operation, a number of contract wells can be anticipated.

299. The Court specifically orders and directs that any contract to provide replacement services within the Amended Plan must be executed and effective in a time frame that permits the foregoing steps to occur before any decisions are made pursuant to Appendix 1 and Appendix 5 of the Amended Plan for each year's Annual Replacement Plan. In other words, contract replacement services under the Amended Plan cannot occur unless and until the well or wells to be included have been properly integrated into the Annual Replacement Plan and until appropriate, documented decisions have been made concerning the adequacy of response functions to include the resulting depletions.

300. The Court concludes that the contract authority contained in the Amended Plan at Section II.C. is appropriate in order to meet the Amended Plan's goals. Allowing municipal and commercial wells to contract with the Subdistrict also benefits the senior surface rights because the actual withdrawals and injurious depletions resulting from the withdrawals by these wells will be addressed in the context of the entire plan.

I. Challenges to the Use of Closed Basin Project Water as a Potential Source of Replacement Water

301. The Objectors have challenged the use of Closed Basin Project water as a replacement source in this Plan of Management. Objectors presented no independent evidence on this question, but they cross-examined the Supporters' experts on this subject and in particular Mr. Allen Davey. Mr. Davey testified that he was familiar with the Closed Basin Project and the Closed Basin Project decree. See Exhibit A to Acequia Objectors' Brief Regarding Closed Basin; see *also* Exhibit 54 (Diligence Application on W-3038).³⁰ He testified concerning his knowledge of the Closed Basin Project development, construction and operation from the commencement of the project through the present time, both as the engineer for the Rio Grande Water Conservation District and as a member of the operating committee of the project. *Testimony of Allen Davey* (Sept. 30, 2009). Mr. Davey testified concerning his familiarity with the 60/40 Agreements, which are Exhibits 16, 17, 18, 19, and 20 in these proceedings, and that the project water supply had been allocated in accordance with the terms of the 60/40 Agreements from the time of adoption until the present. Mr. Davey testified that the Project Operating Committee utilizes project monitoring wells. He testified about the limitations contained in the project authorizing legislation, as well as the provisions in the project decree W-3038 (April 21, 1980) to ensure that the water supply from the

³⁰ The Closed Basin Project, its relationship to the Rio Grande Compact obligation, and the 60/40 Agreements are described at some length in this Court's opinion in 2004CW24 at ¶¶ 100-113.

project and the operation of project wells did not violate the terms of the project decree or the project legislation. *Id.*

302. The Closed Basin Project history is set forth in its decree in Case No. W-3038. It was conceived prior to 1929 as a surface collection system of canals and ditches to gather the water flowing into the sump of the Closed Basin. Because of water quality concerns wells were added to the project to provide higher quality water, and a final plan was developed by the Bureau of Reclamation in 1947. The Closed Basin Project is a federal reclamation project authorized by Congress. Act of Oct. 3, 1980, P.L. No. 92-514, 86 Stat. 964, as amended, Act of Oct. 3, 1980, P.L. No. 96-375, sec. 6, 94 Stat. 1505, 1507; *Closed Basin Landowners Ass'n v. Rio Grande Water Conservation Dist.*, 734 P.2d 627, 629 (Colo. 1987). The Project was decreed for a variety of purposes including irrigation use and, most importantly, to accomplish maximum utilization of Colorado's share of the flows of the Rio Grande and its tributaries under the Rio Grande Compact. While this effort to attain maximum utilization is currently accomplished by delivering Project water to the Rio Grande to meet a portion of Colorado's Compact obligation and thereby reduce curtailment of water rights that otherwise would be required to meet the Compact, the method for allocating the benefits of the Project among Colorado water users is not specified by the Project legislation or its water rights decree. The Court determines that it is the responsibility of the Project owner, the United States Government through the U.S. Bureau of Reclamation, and the holder of the Project decree, the Rio Grande Water Conservation District, to determine whether and how to allocate the Project's production among the lawful beneficial uses, and whether to seek changes to existing allocation agreements.

303. The decree makes it very clear that the purpose of the project is to lower the entire water table within the project boundaries so as to preclude substantial loss through surface evaporation and evapotranspiration. The Project decree specifically finds that the purpose of the project wells will be to draw down groundwater an average of approximately 8 feet within areas of the Project and that ample, unappropriated groundwater is available within the boundaries of the Project to satisfy existing appropriations of underground water and the appropriations to be made by the applicant. These determinations are binding upon the Court and the parties to this litigation and are not subject to collateral attack. *See Closed Basin Landowners Ass'n*, 734 P.2d at 637. Closed Basin Project water delivered to the Rio Grande for the benefit of the Rio Grande and Conejos River can be substituted for the Compact deliveries otherwise required from the Conejos River, thereby making additional water available for upstream diversion. Thus, if the goal is to provide replacement water for injurious depletions in time, place and amount, a mechanism to reduce Compact delivery curtailments and thus permit additional diversion from the river is a useful and flexible tool. This is described in the 60/40 Agreement and in the decree.

304. Including Closed Basin Project production as part of the Subdistrict's Annual Replacement Plan is clearly within the scope of the beneficial uses set forth in the Closed Basin Project decree, and the Subdistrict's inclusion of Project water as a

possible replacement source is not prohibited. In fact, integrating the Subdistrict's plan of water management with the obligation for water delivery under the Rio Grande Compact is an essential statutory requirement. Coordination with existing methods of addressing the Compact obligation and proven methods of improving water availability to senior surface water rights is both sensible and prudent.

305. In Exhibits 16 – 20, entities representing the beneficiaries of the Closed Basin Project contracted and agreed that the production from the project would be utilized for purposes of replacing depletions to river flows caused by well pumping through the delivery of Project production to the credit of the Conejos and Rio Grande. The terms of the 60/40 Agreements were subject to public notice and court hearing in Case No. 95CV51. The Court confirmed the existence and legality of the 60/40 Agreement as a contract binding upon the owner of the Closed Basin Project decree, the Rio Grande Water Conservation District. At this time, there has been no allocation other than by the 60/40 Agreement of Closed Basin Project production. Specifically, there has been no allocation of Project production to offset depletions caused by pumping within Subdistrict No. 1. It would be premature for the Court to determine how any new allocation might occur, if it would occur, and the process by which it would occur. The Court observes that the Amended Plan simply identifies Closed Basin Project production as one of the potential sources of replacement water. Should an Annual Replacement Plan include Project production as replacement water, whether the allocation suffices to protect surface water sources from injury is an issue that would be subject to the Court's retained jurisdiction.

306. Because an allocation has not been made to the Subdistrict at this time, any challenge to the use of such an allocation of Closed Basin Project production for use in the Amended Plan is not ripe. Furthermore, the Court will not address the Acequia Objectors' arguments that the Closed Basin Project causes stream depletions and that it should only be allowed to operate pursuant to an augmentation plan as those issues are not properly before the Court in this case.

J. The Amended Plan's Change in Timing for Removing Land from Irrigation to Effectuate Further Recovery of the Unconfined Aquifer to a Sustainable Condition is Lawful.

307. The Acequia Objectors challenge the change in timing in the Amended Plan which delays the proposed reduction in irrigated acreage, asserting it results in injury to certain groundwater rights. Based upon the evidence presented at trial, the Court reaffirms its conclusion that recovery of the Unconfined Aquifer to levels between 200,000 and 400,000 acre-feet below the levels measured in 1976 is a reasonable goal to achieve sustainability of the Unconfined Aquifer. The Court reaffirms that doing so within a twenty-year time frame, as required by both the Original and Amended Plan, is reasonable. February Order, at ¶ 118. The Court reaffirms that sustaining the Unconfined Aquifer within these parameters should result in sustainable aquifers within the Subdistrict that can be used as a reservoir to ensure an adequate water supply in dry years. See February Order, at ¶ 116. Finally, the Court reaffirms its previous holding that utilizing Davis Engineering's Unconfined Aquifer Storage Study "is an

adequate tool for measuring the changes in the unconfined aquifer storage and may be utilized by the Subdistrict in determining its compliance with the sustainability standard for the unconfined aquifer as set forth in the Plan.” *Id.*, at ¶ 58.

308. The Amended Plan’s commitment to designate up to 40,000 acres of land within the Subdistrict for retirement over a period of ten years, as opposed to the five years required by the Original Plan, is a reasonable decision based on the record. The timeline for recovery of the Unconfined Aquifer remains twenty years after judicial acceptance of the Amended Plan, as does the Subdistrict’s commitment to a sustainable aquifer. Exhibit 111, Opinion 3. The Court declines to hold that the Subdistrict is responsible for an immediate recovery of aquifer levels, and specifically rejects the notion that a well owner is entitled to a specific water level in his or her well. See *e.g. Colorado Springs v. Bender*, 366 P.2d 552, 555 (Colo. 1963). The Court is well aware that current agricultural practice in the Subdistrict depends on groundwater in the Unconfined Aquifer and that Unconfined Aquifer groundwater water levels had dramatically declined in some areas but are now generally increasing throughout the Subdistrict. See Exhibit 86. Moving forward now on this and other aspects of the Amended Plan are essential to recover the groundwater storage levels in the Unconfined Aquifer.

K. The Amended Plan Does Not Need to Include Terms And Conditions Regarding Management of the Confined Aquifer.

309. The Objectors argue that the Amended Plan is faulty because it fails to include terms and conditions for management of the Confined Aquifer to insure that the Confined Aquifer complies with the statutory requirements. This Court has already rejected the Objectors’ argument that a plan of water management must fully satisfy all the principles set out in section 37-92-501(4)(a) and (b).

132. What it means to “meet the requirements of paragraphs (a) and (b) of subsection (4)” was the subject of considerable discussion during the trial. The Court does not agree with Objectors that the Plan of *Water Management must fully satisfy* all the principles set out in C.R.S. § 37-92-501(4)(a) and (b). To begin with, these sections specify what the State Engineer must do and the principles he/she must apply. The fact that the State Engineer has not adopted rules which establish criteria for the beginning and end of the irrigation season in Water Division No. 3 is not a basis to reject this Plan and it is not appropriate for the Subdistrict to address this or similar duties of the State Engineer. The Plan must “meet the requirements” of the statutes. In enacting rules and regulations and in preparation to do so, “the State Engineer shall have wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights.” There would be no point in allowing the formation of several regional and aquifer oriented subdistricts and in authorizing them to develop plans of water management if no plan could be approved unless in a single plan all the goals of the statute and all duties of the State Engineer are satisfied.

133. Section (4)(a) sets forth principles for the State Engineer to apply in regulating the aquifers in Water Division No. 3. For example, (4)(a)(I) requires the State Engineer to regulate the aquifers of the basin “so as to maintain a sustainable water supply in each aquifer system.” A subdistrict focused on the Unconfined Aquifer of the Closed Basin encompasses only a portion of the basin and the Plan for Subdistrict 1 cannot and is not designed to regulate the entire basin or even the Confined Aquifer. This does not mean the Plan fails to meet the statutory requirement. The Plan is consistent with the maintenance of a sustainable water supply in each aquifer system, and the proposal of the Plan to reduce water consumption and recharge the Unconfined Aquifer to a level 200,000 to 400,000 acre-feet below 1976 levels is clearly a step toward achieving the principle set out in (4)(a)(I) and most specifically the principle in (4)(a)(II) which states the unconfined aquifers “serve as valuable underground reservoirs.”

134. Similar objections were made to the State Engineer proposing rules governing new withdrawals from the Confined Aquifer without simultaneously enacting rules governing existing withdrawals from the Confined and Unconfined aquifers. The Supreme Court approved this Court’s conclusion that SB 04-222 allows the State Engineer to proceed in steps to regulate the aquifers. The interrelationship of section 37-48-126 and section 37-92-501 would make no sense if a single unified and complete plan for both aquifers on a basin-wide basis was required to satisfy the statutory language. As the Supreme Court said:

The rules at issue regulate only *new* withdrawals from the confined aquifer. Opponent argues that by failing to regulate existing wells, the state engineer is abdicating his responsibility. To the extent that Opponent argues that the rules must fail because they regulate only new withdrawals, and fail to also regulate existing users, we reject their argument.

Opponent does not cite any statutory provisions that could be construed as requiring the rules to regulate both existing and new water users of the confined aquifer. Indeed, SB 04-222 gives the state engineer “wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights.” § 37-92-501(4)(a). In addition, we note that nothing in the rules precludes further regulation of existing wells. Thus, we find that the rules do not violate statutory authority by regulating only new water uses.

Simpson v. Cotton Creek Circles, LLC, 181 P.3d 252, 263 (Colo. 2008).

135. Section 37-92-501(4)(a) also references section 37-92-501(2) and states that the provisions of said subsection (2) of this section must also be considered and applied to the plan of water management. Section 37-92-501(2), C.R.S., provides as follows:

(2) In the adoption of such rules and regulations the state engineer shall be guided by the principles set forth in section 37-92-502(2) and by the following:

(a) Recognition that each water basin is a separate entity, that aquifers are geologic entities and different aquifers possess different hydraulic characteristics even though such aquifers be on the same river in the same division, and that rules applicable to one type of aquifer need not apply to another type. All other factors being the same, aquifers of the same type in the same water division shall be governed by the same rules regardless of where situate.

(b) Consideration of all the particular qualities and conditions of the aquifer;

(c) Consideration of the relative priorities and quantities of all water rights and the anticipated times of year when demands will be made by the owners of such rights for waters to supply the same;

(d) Recognition that one owner may own both surface and subsurface water rights;

(e) That all rules and regulations shall have as their objective the optimum use of water consistent with preservation of the priority system of water rights;

(f) That rules and regulations may be amended or changed from time to time within the same aquifer dependent upon the then existing and forecast conditions, facts and conditions as then known, and as knowledge of the aquifer is enlarged by operating experience;

(g) That time being of the essence, rules and regulations and changes thereof proposed for an aquifer shall be published once in the county or counties where such aquifer exists not less than sixty days prior to the proposed adoption of such rules and regulations, and copies shall be mailed by the water clerk of the division to all persons who are on the mailing list of such division. Copies of such proposed regulations shall be available without charge to any owner of a water right at the office of the water clerk.

136. The Court finds the Plan treats the Unconfined Aquifer as a valuable underground water storage reservoir and, while seeking to recover the water levels in the Unconfined Aquifer, allows water levels to fluctuate in

the future in response to climatic conditions, water supply and water demand. See *Knox testimony, October 30, 2008*. These aims of the Plan are consistent with and flow from the “wide discretion of the State Engineer when adopting rules governing use of the underground water in Division No. 3” §37-92-501(4)(a), C.R.S.

* * * *

145. This Court sees the interrelationship of this proposed Plan, likely proposals for plans from other subdistricts, the Rules Governing New Withdrawals from the Confined Aquifer, Rules Governing the Measurement of Ground Water Diversions, the other aspects of SB 04-222, and other steps taken and yet to be taken by the State Engineer, as directly intended to “integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all the waters of the state.” Section 37-92-102(1)(a), C.R.S. See Findings of Fact, Conclusion of Law, Judgment and Decree, Case No. 04CW24, at p. 189.

February Order, at ¶¶ 132-136, 145.

310. To the extent that the Objectors’ challenge the Amended Plan because it impermissibly conflicts with the Court’s suggestion in its February 2009 Order that Confined Aquifer Wells in the Subdistrict should join a separate subdistrict for those wells, the Court agrees that the February 2009 Order required Confined Aquifer wells to move to a subdistrict specific to these wells, but the Court now tempers that absolute requirement. The Subdistrict can calculate injurious stream depletions resulting from Confined Aquifer wells within the Subdistrict. *Testimony of Willem Schreüder* (Oct. 1, 2009). The Subdistrict Amended Plan will replace injurious stream depletions resulting therefrom. *Testimony of Carla Worley* (Sept. 29, 2009). Some wells in the Subdistrict are completed in both the Confined and Unconfined Aquifers. *Id.* at p. 89-90. The recovery of artesian pressures in the Confined Aquifer underlying the Subdistrict is connected with the recovery of groundwater levels in the Unconfined Aquifer within the Subdistrict. *Testimony of James Slattery* (Oct. 5, 2009). The Court finds that the Subdistrict’s inclusion of Confined Aquifer wells in the Amended Plan at this time is reasonable, not arbitrary and capricious, and is supported by the evidence in the record. When and if a subdistrict for Confined wells is formed, an analysis of the benefits and negatives of transfer of Confined Aquifer wells to that subdistrict can be better evaluated.

311. By the time any Confined Aquifer subdistrict is proposed, improvement to the RGDSS groundwater model and experience with the operation of Subdistrict No. 1 will aid in evaluating the best way to address injurious depletions caused by these Confined Aquifer wells, as well as in addressing the other goals of aquifer recovery and sustainability. Flexibility and accountability are critical to the success of Subdistrict No.1 and to the overall success of the ambitious goals set forth in SB 04-222. At such time as a Confined Aquifer subdistrict is proposed, an analysis from the *technical advisory*

committee, including the modelers, shall be filed with the State Engineer and the Court and made publicly available. This analysis will evaluate the options for the Confined Aquifer wells and the effect of those options on the ability of the Subdistrict to replace injurious depletions, the effect of these options on the broader duty to address artesian pressure as required by SB 04-222, and any relevant economic considerations. This issue is subject to the Court's retained jurisdiction and to the ability of the Subdistrict itself to propose changes in the Amended Plan.

L. Appendix 2's Calculation of Surface Water Credit is Reasonable and Supported by the Record.

312. Mr. Ramstetter and Mr. Atkins assert that the Amended Plan's provisions regarding Surface Water Credits lack sufficient specificity and are without basis in the law. Specifically, "the water right which generates any excess Surface Water Credit belongs to the owner of the water right and the owner of the water right should be allowed to use his water right for its decreed purposes or for purposes allowed under the provision of a valid groundwater management plan." *Objection to Amended Plan for Water Management* (Ramstetter and Atkins, June 25, 2009). The Amended Plan does not take or redistribute anyone's water right. The Surface Water Credit is a financial mechanism created by the Subdistrict solely for the purposes of calculating its Annual Service and User Fee. That financial credit may be carried over by its owner or traded to others as described above. At trial, it was evident that Mr. Ramstetter disagrees with Appendix 2's direction that excess Surface Water Credit may only be carried over for a single year and wishes that the Amended Plan allowed this Surface Water Credit to be carried over indefinitely. *Testimony of Richard Ramstetter* (October 9, 2009). In reviewing this objection, the Court is guided by the standards it set forth in its *Order Re Standard of Review, Burden of Proof and Order of Presentation at Trial*, of April 8, 2008 ("April Order"), which governs these proceedings. See *Joint Trial Management Order* (Sept. 17, 2009). In the April Order, the Court held that it:

will review the quasi-legislative Plan to ensure it is "not unreasonable and arbitrary" and bears a rational relationship to the legitimate state objectives set forth in the statutory framework before the Court. The Plan is presumed valid, and the challengers have the burden to demonstrate its invalidity. Cf. *Eagle Peak Farms*, 919 P.2d at 217. Moreover, the Court will not substitute its judgment for that of RGWCD. Rather, the Court will determine whether, in enacting the Plan, RGWCD: 1) violated constitutional or statutory law; 2) exceeded its authority; or 3) lacked a basis in the record for its provisions. *Id.*

April Order, at 17.

313. The Amended Plan provides that Surface Water Credit may only be carried over for a single year. Mr. Davey testified that Surface Water Credit calculated to occur in year one could offset that year's fees on the Farm or Farm Unit or be carried over to offset the fees in year two. Any surface water credit calculated to occur in year two would then necessarily be available to offset fees assessed against the Farm or

Farm Unit, or available for lease or sale to another water user in year three. There is no evidence that this determination exceeded the Subdistrict's authority, violated constitutional or statutory law or lacked a basis in the record. In fact, the 2009 Administrative Record clearly shows the addition of this language to the drafts of the Surface Water Credit Calculation documentation that was adopted as Appendix 2. See 2009 AR-12, 19, 37, 39, 41. While Mr. Ramstetter and Mr. Atkins may disagree with the board of managers' determination of how it will calculate its fees from year to year and with the extent to which the financial credit may be carried forward, there is nothing in the record to suggest that their determination was arbitrary, unreasonable, or contrary to law.

314. At trial, counsel for Mr. Ramstetter and Mr. Atkins questioned the timing of the calculations regarding Surface Water Credits, specifically questioning why the Amended Plan requires that Surface Water Credit be calculated by October 31 of each year while the reporting of the Annual Replacement Plan governing the Subdistrict's replacement of injurious stream depletions from Subdistrict Well pumping is to be completed by April 15 of each year. The Court finds that the timing of these two calculations is not mutually exclusive, is permissible as a matter of law and is not unreasonable or unfair.

315. The Amended Plan mandates that by October 31 the Subdistrict shall:

i. calculate the amount of surface water allocated to the Farm or Farm Unit by virtue of the shares of the canal or reservoir company attributable to the lands within the farm or farm unit or allocable to lands within an irrigation district based upon a five year running average utilizing the current water year and the four previous years.

ii. calculate the amount of surface water applied directly to irrigation or other beneficial use and not used for recharge and deduct the consumptive use of such water from the surface water value calculated above to determine the Surface Water Credits for each farm or Farm Unit.

Amended Plan, at § IV.B.2.b. The Subdistrict, in order to assess its Annual Service and User Fee, must submit those fees to the applicable county assessors on or about December 1st. *Testimony of Allen Davey* (Sept. 30, 2009). The Surface Water Credit is a necessary component of that fee, and, therefore, its calculation by October 31 is reasonable.

316. The Amended Plan mandates that surface water allocable to a Farm or Farm Unit is calculated utilizing a five-year running average of actual data from the current year and the four previous years. By necessity, this calculation occurs after the irrigation season. A landowner will know, after the irrigation season in year one, how much Surface Water Credit he or she will have to utilize in year one, and how much he or she will have available to carry forward to year two for use either to offset the Farm or Farm Unit pumping or to lease or exchange with another water user within the Subdistrict. The fact that the Subdistrict reports its Annual Replacement Plan in April

preceding the next Plan Year has no effect on the calculation of Surface Water Credits. The fact that a Farm or Farm Unit must report its exchange of Surface Water Credits as part of its annual Farm Unit data ensures that the Subdistrict can accurately account for its operations. Accordingly, the Court rejects Mr. Ramstetter's and Mr. Atkins' suggestion that the Amended Plan is arbitrary, unreasonable or unlawful because it has different reporting time frames.

317. At trial, it became clear that several of the Objectors were concerned the Amended Plan would reduce the amount of money they could get from selling their Surface Water Credit. These Objectors argued that the Subdistrict's Water Value, which is limited to seventy-five dollars (\$75) per acre-foot of water by the terms of the Amended Plan, unfairly limited their ability to sell their Surface Water Credits on the free market and essentially capped their potential return to \$75 per acre-foot. *Testimony of Richard Ramstetter* (Oct. 9, 2009); *Testimony of Norman Slade* (Oct. 8, 2009).

318. The Court finds that the Surface Water Credit is a financial mechanism created by the Subdistrict for purposes of calculating its Annual Service and User Fee; and the Subdistrict is not creating a market for actual wet water to be exchanged, sold, or leased under the guise of the Surface Water Credit. *Testimony of Carla Worley* (Sept. 29, 2009). The Subdistrict specifically declined to involve itself in the market of selling Surface Water Credits, and Appendix 2 states that any exchange, trade, lease or sale of Surface Water Credits are contracts between water users that must be reported to the Subdistrict for accounting purposes. Appendix 2, at 1. There is no evidence that the Subdistrict has effectively set the market for Surface Water Credits. Instead, Carla Worley testified that some surface water credits may be more valuable than others, considering factors such as the dependability of a surface water supply. *Testimony of Carla Worley* (Sept. 29, 2009).

319. It is necessary for the Subdistrict to raise money to implement the Amended Plan, and it rationally has chosen to do so, in large part, by imposing a variable fee on groundwater pumping. The Court held in its February 2009 Order that because the Subdistrict's fees were supported by the record and were rationally related to legitimate state objectives, it would not overturn either the Subdistrict's choice of fees, or their amount. February 2009 Order, at ¶ 156. If the Water Value described by the Annual Fee, capped by the Subdistrict at \$75 per acre-foot of water, affects the dollar amount that a water user can receive for transferring his or her Surface Water Credit to another water user, as a fee in any amount could, that simply is a function of the Subdistrict's setting of the fee at a level dictated by its needs, not an attempt to deprive anyone of value. Furthermore, there is no evidence that the Subdistrict acted in an arbitrary or capricious manner or in violation of statute in setting the components of the Annual Service and User Fee. See February 2009 Order at ¶ 156. Nor is there any evidence that the Subdistrict acted in an arbitrary or capricious manner in determining that the exchange of Surface Water Credit would be a contract between water users.

320. The Court finds that Appendix 2 provides a reasonable basis for calculating Surface Water Credits in Subdistrict No. 1 and there is no evidence that its terms are arbitrary or capricious. Accordingly, it is approved in its entirety.

M. Appendix 3 Adequately Sets Forth the Methodology to Inventory and Describe Subdistrict Wells and to Update the Database Based on Each Year's Annual Replacement Plan.

321. Appendix 3 describes how the Subdistrict will cooperate with the Division of Water Resources to develop each year's Subdistrict Well Database. While the data set utilized by the Subdistrict comes from the Division of Water Resources, Mr. Davey testified that the data will be compiled to isolate the wells that fit the definitions of Subdistrict Wells. *Testimony of Allen Davey* (Sept. 29, 2009). Mr. Sullivan testified that the Subdistrict's efforts to identify only the wells included within the Subdistrict would be important to the Division Engineer's administration of the Amended Plan. *Testimony of Mike Sullivan* (Oct. 7, 2009). The Subdistrict Well Database will be submitted as part of the Annual Replacement Plan of the Subdistrict. Appendix 5, at p. 2. Annual changes to the Subdistrict Well Database will be presented to the board of managers for their review and approval as part of the Annual Replacement Plan. At trial, the Objectors argued that annual changes to the Subdistrict Well Database should not be made without public participation especially since they may impact the operation of the Subdistrict's Amended Plan to the detriment of senior surface water rights. Thus, the Objectors' challenge to Appendix 3 is not the data collection efforts that the Subdistrict undertook to identify the Subdistrict Wells and create Appendix 3, but how changes to Appendix 3 will occur and what process the Subdistrict will utilize to ensure proper notice and an opportunity to comment from interested parties. *Testimony of Steve Vandiver* (Sept. 28, 2009).

322. The Subdistrict developed the Subdistrict Well Database utilizing the data available to it from the Division of Water Resources. The description of the wells contained in the database and the methodology utilized to sort the database is reasoned and logical. Appendix 3, as presented, conforms substantially, to the direction of the Court's February Order found at ¶ 212, Fifth. The one obvious shortcoming is the present failure to identify and sort those wells within the Subdistrict for which there is an augmentation plan. Appendix 3 addresses this as follows at paragraph 3:

We can not clearly identify in the data in the database the wells that are included in a separate augmentation plan. SWR can provide a list of the well WDIDs associated with the augmentation plan lands that are found within the Subdistrict #1 boundary. The Subdistrict will need to maintain this list separate from the Subdistrict wells as part of their normal bookkeeping.

323. As the text indicates, the Subdistrict recognizes the need to keep a list of augmentation wells and what their status is. Since the Court is approving a start date of 2012 for the first Annual Replacement Plan, the updating of Appendix 3 can and should

include the separate list of wells with augmentation plans, links to the plans and a map of the locations of these wells.

324. The Appendix 3 “database will continue to be updated” in order to accurately summarize reality. Appendix 3, at p. 1. The Subdistrict Well Database will inevitably change on an annual basis and changes to the database to make it more accurate to best reflect the state of the Subdistrict are reasonable and necessary and do not render the Amended Plan void for vagueness. *See People v. Firth*, 205 P.3d 448, 449 (Colo. App. 2008) (stating that the essential inquiry in a void for vagueness challenge is whether the terms are so vague that persons of common intelligence cannot readily understand its meaning and application).

325. The board of managers will be responsible for reviewing and approving each year’s Annual Replacement Plan before it is submitted to the State and Division Engineer’s Offices for approval. Part of this review will necessarily include a review of the Subdistrict Wells included each Plan Year. *Testimony of Steve Vandiver* (Sept. 29, 2009). Because all meetings of the board of managers are publicly noticed meetings that are open to the public, this review will be conducted, and action will be taken by the board of managers in a public forum. Nonetheless, the Court directs the Subdistrict to provide notice seven days before it conducts any meeting to take action on the Annual Replacement Plan and to make copies of the Annual Replacement Plan available for public review prior to the meeting, utilizing the District’s website

326. The Court directs that a copy of the approved Annual Replacement Plan filed with the Division and State Engineers, including the complete database of wells, shall also be contemporaneously filed with the Court and posted on the RGWCD website. The Court concludes that with these protections, members of the public will have sufficient opportunity to examine and challenge the annual Subdistrict Well Database.

N. Appendix 4 Adequately Describes the Subdistrict’s Budgeting and Accounting Procedures and Provides Opportunity for Public Involvement.

327. The Objectors claim that the Amended Plan does not provide sufficient detail concerning the timeline and method for disclosure for participation in the CREP (Conservation Reserve Enhancement Program) program. At trial, Mr. Atencio, on behalf of Mr. Ramstetter and Mr. Atkins, questioned Mr. Davey about the availability of information regarding CREP contracts between a producer and the USDA and supplemental contracts between a producer and the District. *Testimony of Allen Davey* (Oct. 1, 2009). The Subdistrict’s disclosure of information regarding CREP participation is discussed in Appendix 4. The Court had already approved the substance of Appendix 4 in advance of the first phase of the litigation. *Order Re Objection to Stipulation* (Oct. 22, 2008). While the Court understands that the intricacies of the operation of the CREP program are not set forth in the Plan, the Court will not reject the reporting obligations in Appendix 1 and 4 because they do not fully describe CREP rules and regulations. Appendix 4 specifically states that to the extent records pertaining to CREP are “public records maintained by the District they will be available

for public review.” Appendix 4, at p. 3. As discussed previously, the District and the Subdistrict are political subdivisions of the State of Colorado, § 37-48-101.3 C.R.S. (2009), and are thus subject to the Colorado Open Records Act. See § 24-72-200.1 *et seq.* C.R.S. (2009). By definition, records defined as “public records” by the statutes’ terms will be available from the District. § 24-72-202, C.R.S. (2009).

328. Further, the Court notes that Appendix 1 to the Amended Plan requires the Subdistrict to submit documentation regarding fallowed lands, including those included in the CREP program as part of its Annual Replacement Plan. Appendix 1, at ¶ 10. To the extent that a CREP program is approved in the San Luis Valley and to the extent that producers are involved in the CREP program, the Court concludes that the reporting requirements in the Amended Plan, in conjunction with those otherwise required by law, are sufficient to allow members of the public to understand the availability and applicability of the CREP program.

329. The text of Appendix 4 is not unreasonable or arbitrary. It sets forth procedural guidelines that the Subdistrict must follow in adopting a budget and conducting its accounting procedures. These provisions are designed to protect all of the water users within Subdistrict No. 1. As a political subdivision of the State of Colorado, the Subdistrict is bound to comply with the Local Government Budget Law of Colorado, and there is nothing in Appendix 4 that contradicts those provisions. See § 29-1-101 *et seq.*, C.R.S. (2009). This Appendix was developed in public meetings, and a copy of Appendix 4 as considered by the board of managers is contained in the 2009 Administrative Record. See 2009 AR-16. The Court approves Appendix 4 in its entirety and finds that the Subdistrict did not exceed its authority in adopting it.

O. The Subdistrict May Assess a Fee for the Collection of Well Metering Data Pursuant to the Terms of Appendix 5.

330. Mr. Ramstetter and Mr. Atkins raised for the first time at trial a challenge to a specific provision of Appendix 5 relating to the Subdistrict’s collection of well meter readings from Farm or Farm Units. Appendix 5 provides that between October 1 and October 15, the Subdistrict will request well owners to submit well meter readings and between October 16 and October 30, the “Subdistrict will collect well meter readings not submitted by owners. Well owners may be assessed a fee per well for collection of well meter reading.”

331. The Court finds that the cost of obtaining well meter readings from recalcitrant Subdistrict members is predictable and is not a cost that should be borne by the Subdistrict as a whole, but rather by the Subdistrict well owner who does not submit the necessary data. While this cost is not a part of the Annual Service and User Fee as described by the Amended Plan, the language in Appendix 5 is clear that any assessment will be only “for collection of well meter reading.” This Court approves the collection of this fee in the amount that it actually costs the Subdistrict to obtain the well metering data. The well meter readings are critical to the evolution of the groundwater model and the accuracy of its projections. Ensuring compliance with the requirement for timely, accurate readings is necessary to the success of this and any other subdistrict.

P. Effect of Non-Compliance with Amended Plan

332. At trial, Mr. Sullivan reinforced his previous testimony and emphasized that neither the Division Engineer or State Engineer will approve an Annual Replacement Plan for Subdistrict No. 1 that does not present sufficient evidence and engineering analysis to predict where and when injurious stream depletions will occur and how Subdistrict No. 1 will replace those injurious depletions to avoid injury to senior surface water rights. *Testimony of Michael Sullivan* (Oct. 7, 2009). Mr. Sullivan stated that as the statutes and this Court's prior order prohibit the State Engineer from approving such a plan, the Division and State Engineer will follow the law and require a showing that the Subdistrict can and will replace predicted injurious stream depletions.

333. Mr. Sullivan also acknowledged that predictions of future events, including stream depletions, is inherently uncertain and therefore may not be perfect. *Id.*, (Oct. 7, 2009). It is possible that the approved predictions contained in the Annual Replacement Plan may end up being incorrect due to the uncertainty inherent in predicting future hydrologic conditions, a fact that cannot be known until late in the year. Section 11 of Appendix 1 of the Amended Plan provides for a review after each initial year of operation to determine if the Plan operations successfully replaced all calculated injurious stream depletions and requires Subdistrict No. 1 to add any shortfall in replacement water to the next year's Annual Replacement Plan. Mr. Sullivan testified that although such remedial actions may not completely compensate affected water users for injury, the administration of water is not a perfect science; and there are times, including outside of the operations of plans of water management, where a senior water user may be inadvertently injured and have no recourse at that time. *Id.* (Oct. 7, 2009).

334. There is inherent uncertainty in the calculations of the time, location and amount of injurious stream depletions; but such uncertainty is not fatal to the Amended Plan. *See Public Serv. Co. v. Willows Water Dist.*, 856 P.2d 829, 835 & n.15 (Colo. 1993); *see also Kansas v. Colorado*, 543 U.S. 86, 102, 125 S.Ct. 526, 538 (2004) (recognizing that perfection is impossible and rejecting Kansas' objection to the use of a 10-year running measurement period to determine depletions and measure Colorado's future compact compliance noting that model results over measurement periods of less than 10 years are highly inaccurate). What is important is that the Amended Plan has a mechanism to review its annual performance so that future operations can be improved. The Court finds that the year-end review serves this important function and will aid the Subdistrict and the State and Division Engineers in performing their duties to prevent injurious stream depletions.

335. The uncertainty inherent in replacing injurious stream depletions in real time largely is a function of the difficulty of predicting stream flow, rainfall, and other conditions that can change water supply and water demand for the year in which pumping occurs. The stream depletions attributable to pumping in prior years is known and can be addressed. It is only the depletion attributable to the current year's pumping that is unknown in advance. Therefore, the amount of any under-replacement or over-replacement is likely to be a small part of total pumping depletions. Mr. Sullivan noted

that the review of each year's Annual Replacement Plan will assist in reducing the potential for future mistakes that may result in under-replacement of injurious stream depletions. *Id.* Objectors did not present any evidence on this issue.

336. The Court acknowledges the potential for over or under-replacing injurious stream depletions and finds that, in considering the inherent difficulty of predicting future events, and the limitations on the overall accuracy to which water rights are capable of being measured and administered, computing any such under-deliveries after the irrigation season and replacing those under-deliveries as part of the next Annual Replacement Plan does not make the Amended Plan unlawful or fail to meet the requirements of section 37-92-501(4)(a) and (b). In fact, the Plan would be subject to justifiable criticism if it did not contain such a compensatory mechanism. The critical factor, however, is that the Annual Replacement Plan make the best possible prediction of stream depletions, and that the Division Engineer administer the Amended Plan to ensure all estimated depletions are replaced where and when required. The provisions of the Amended Plan, if properly implemented, will accomplish this goal and truly do all that is required and reasonably possible to prevent injury.

337. Moreover, under-predicting of injurious stream depletions does not mean there will be injury to vested surface water rights due to the proposed integration of operation of the Amended Plan with Rio Grande Compact administration. The State and Division Engineers can make adjustments in Rio Grande Compact curtailments to avoid injurious depletions to surface water rights from Subdistrict Well pumping. If the Subdistrict is inadvertently under-replacing actual injurious depletions to the Compact streams, the Division Engineer can reduce the existing Compact curtailment and thereby make more water available to surface water rights. The Subdistrict could then replace the reduced Compact curtailment by delivery of more replacement water to the stream in a subsequent month, thereby keeping the Compact delivery "whole." This is possible because the Compact has an annual delivery schedule and a system of annual debits and credits, so the Division Engineer can temporarily reduce curtailments in aid of Compact deliveries; and the Subdistrict can make up that reduction at a later date, even after the irrigation season, and the intervening reduction in Compact curtailment will have prevented injury. Exhibit 112, Opinion 2. As noted earlier, integration of the operation of the Amended Plan with the well-understood administration of the Rio Grande Compact has many benefits including those described here. The Objectors did not present any evidence to refute the ability of the Division Engineer to administer the Compact curtailment in this manner to assist in avoiding material injury. The Court finds that such administration is within the discretion of the Division Engineer, and does not unreasonably interfere with the state's ability to fulfill its obligations under the Rio Grande Compact and is otherwise consistent with the requirements of sections 37-92-501(4)(a) and (b). In fact, this is an excellent example of the "sound and flexible integrated use of all the waters of the state." § 37-92-102(2), and the "wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights." § 37-92-501(4)(a).

338. The Court does not doubt the intent of the State and Division Engineers to use their best engineering and administrative judgment to try to assure that any approved Annual Replacement Plan will be sufficient to avoid material injury to senior surface water rights. Objectors point out that the procedures set out in Appendix 1 do not address what the State Engineer will do if the Subdistrict fails to comply with the terms of the Amended Plan. It is not the place of the Subdistrict or its board of managers to speak for the State Engineer. However, the testimony at trial provides the necessary information. In its February 2009 Order the Court addressed the Objectors' concerns regarding what steps the State Engineer would take if the Subdistrict did not comply with an approved plan of water management:

177. Moreover, all Objectors assert that the Plan is vague and does not contain sufficient detail to assure compliance with the statutory requirements, and that the Plan purports to vest in the Subdistrict and the State Engineer the discretion to define terms and conditions, if any, for operation of the Plan. For example, the Plan does not inventory or reference an inventory of the number or location of the Subdistrict Wells.

178. The State and Division Engineers attempted to address these concerns by asserting that if the Subdistrict fails to replace injurious depletions caused by Subdistrict well pumping, they will invoke the retained jurisdiction of the Court to cancel the Plan and eliminate the Subdistrict members' relief from compliance with rules and regulations. *Trial Testimony (Wolfe) and (Sullivan)*. Deputy State Engineer Mike Sullivan testified that the Division Engineer will require the Subdistrict to remedy the injurious depletions. (Mr. Sullivan was appointed Deputy State Engineer on September 30, 2008).

179. If the Court were to cancel a subdistrict plan, Mr. Wolfe testified, "...I would have to evaluate my authority at that time based on existing laws and authority given to me at that time about what the next steps would be." *Transcript (Wolfe) October 31, 2008*. At present there are no rules and regulations for the existing wells in the unconfined and confined aquifers. The State Engineer believes, and has testified before this Court on several occasions, that he may not curtail pumping which causes injurious depletions to senior water rights without rules and regulations. See, *Fellhauer v. People*, 167 Colo. 320, 447 P.2d 986 (1968). *Transcript (Sullivan) November 3, 2008*; see also *Findings of Fact, Conclusions of Law, Judgment and Decree*, Case No. 04CW24, ¶ 534.

180. Mr. Wolfe's testimony indicated a reticence to predict future action by the State Engineer without a clear understanding of the actual dispute. This was not reassuring to Objectors present; but in the context of the ongoing process to adopt rules and regulations, the Court did not and does not question the intent of the State Engineer to assure

compliance with the duty to replace injurious depletions to the senior surface water rights.

181. Mr. Wolfe testified he anticipates promulgating rules and regulations for Water Division No. 3 well administration in 2009 and that those rules would require curtailment of wells within the Subdistrict in the absence of an approved groundwater management plan under section 37-92-501(IV)(c). If there are no rules and regulations to address injurious depletions, even a court order cancelling the Plan as failed would not provide any remedy to the senior water rights since they would be back in the same position they are today.

February Order, at ¶¶ 177 – 181.

339. During the second phase of this trial, Mr. Wolfe testified directly as to this issue. When asked what he would do if the Subdistrict failed to comply with the Amended Plan, he responded that he would issue an order requiring the Subdistrict to comply with the Amended Plan. If the Subdistrict still did not comply with the Amended Plan after that order, Mr. Wolfe stated that he would request this Court act to enforce his order and force the Subdistrict to comply with the Amended Plan. *Testimony of Dick Wolfe* (Oct. 7, 2009).

340. The General Assembly has provided the State Engineer with the specific authority to “issue to the owners or users of water rights and to the users of waters of the state such orders as are necessary to implement the provisions of section 37-92-501...” § 37-92-502(1), C.R.S. (2009). The Court finds that the State Engineer’s use of and reliance upon section 502(1) as an enforcement mechanism to require compliance with a subdistrict’s approved plan of water management is appropriate. This Court’s broad retained jurisdiction over the continuing operations of the Plan under section 37-92-501(4)(c) is not a prerequisite to the State Engineer’s authority to enforce the terms of the Amended Plan pursuant to section 37-92-502(1) or to the Court’s inherent authority to enforce the State Engineer’s orders.

341. The Court is also cognizant of the State Engineer’s continuing public process to draft and promulgate rules and regulations governing the withdrawal of groundwater from Water Division 3 pursuant to section 37-92-501(1), the so-called “water rule power,” see *Kuiper v. Gould*, 196 Colo. 197, 201, 583 P.2d 910, 913 (1978), that will provide him the authority to curtail wells that are not included within a subdistrict’s approved Plan of Water Management. See *Brief in Opposition to Objectors’ Motion for Determination of Question of Law Regarding the Failure of the Plan of Water Management to Include Required Terms and Conditions to Prevent Injury to Vested Senior Water Rights* (August 19, 2009), at 7 n.1. The Court anticipates that these rules and regulations will also provide the necessary authority to the State Engineer to curtail Subdistrict Wells if the wells are not complying with the approved Amended Plan. This will eliminate the Hobson’s choice presented to senior water right holders and previously noted by this Court where a subdistrict is not complying with an approved plan, but there are no rules and regulations to allow the State Engineer to

administer the wells within that subdistrict, resulting in injury occurring to senior water rights without a mechanism to halt it. February 2009 Order, at ¶ 181.

342. The fact that the Subdistrict and the District have chosen to prepare and adopt a plan of water management in advance of the adoption of such rules and regulations is not a reason to reject the Amended Plan. Instead, the Subdistrict and the District are to be commended for taking such action. In fact, there is no certainty that rules and regulations will be adopted without another long trial and lengthy appeal with all the uncertainty these bring. History teaches us that much. Each day that passes without rules and regulations and/or without a plan of water management in operation is another day without replacement of injurious depletions. Moving forward on this Amended Plan ensures the beginning of a new era for Division 3 realizing the goal of the 1969 Act to “integrate the appropriation, use and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all the waters of the state.”

343. Therefore, the Court finds that there is adequate authority for the State Engineer, and, if necessary, this Court, to assure that the Subdistrict will comply with an approved Annual Replacement Plan and such plan will adequately address and eliminate any injurious depletions to senior surface water rights in accordance with the other provisions of this order. Future rules and regulations should complement and strengthen the State Engineer’s existing authority, but those rules are not a prerequisite to mandating compliance with an approved plan of water management.

Q. Retained Jurisdiction under Section 37-92-501(4)(c) and Section 37-48-124(2)

344. The Amended Plan contains a clear, public process for remedying concerns and objections to the actual operation of the Amended Plan. The process for creation and approval of the Annual Replacement Plan provides the opportunity for Objectors and others to raise legitimate concerns regarding the particular replacement plan for a given year. There are also long-term concerns regarding the adequacy of the calculations of depletions, as well as uncertainties in the success of the efforts to reestablish the levels in the Unconfined Aquifer, fallow land and reach a sustainable condition for the Subdistrict and, beyond that, for the basin. These concerns are addressed in the end of the year plan review and are also subject to the Court’s retained jurisdiction.

345. The Amended Plan sets forth the methodology and timetables this Court specified in its February 2009 Order. With the terms and conditions set out in this order, the Court is satisfied that there is sufficient detail in the Amended Plan and its Appendices to evaluate the determination of injurious depletions and the method for addressing those injuries on a year-to-year and long-term basis. There is transparency in both processes and opportunity for Supporters, Objectors and other interested parties to contribute, to object and to have review both by the State Engineer and by this Court.

346. Should there be issues of alleged injury in the operation of the Amended Plan, the Court retains jurisdiction to take action based on its original and exclusive jurisdiction over lands and property included or affected by the Subdistrict under section 37-48-124(2), and under the water court's retained jurisdiction "over the water management plan for the purpose of ensuring the plan is operated, and injury is prevented, in conformity with the terms of the court's decree approving the water management plan." § 37-92-501(4)(c)

347. Acequia Objectors contend that the statutory provision for retained jurisdiction is not a vehicle to remedy, after the fact, the Supporters' failure to demonstrate an absence of injury at the outset in the manner required for a plan of augmentation under section 37-92-305(6) and (8). The Court addressed this issue in section III. G. above, and concluded that the provisions of section 37-92-501(4)(c) do not require a "no injury" showing in the detailed manner generally required by an augmentation plan pursuant to section 37-92-305.

348. The Objectors also note the limited purpose of "retained jurisdiction" over augmentation plans and argue that the limited retained jurisdiction described there is not adequate to protect senior surface rights when the nature of the sources of annual replacement water is not known at the time of approval of the plan and where the wells in the plan will be free from regulation. See, *City of Aurora ex rel. Utility Enterprise v. Colorado State Engineer*, *supra*. This is a reasonable and significant concern. With regard to retained jurisdiction over an augmentation plan, the Supreme Court stated in *City of Aurora ex rel. Utility Enterprise v. Colorado State Engineer* at 616-17:

Thus, the purpose of retained jurisdiction is to reconsider injury once an augmentation plan is operating, not to prove depletions or prove injury for the first time. Retained jurisdiction cannot substitute for the inherently fact-specific determination of non-injury that occurs during trial based on reliable evidence of the quantity, time, and location of depletions and the legal availability of replacement water.

349. In *Farmer's Reservoir and Irrigation Co. v. Consolidated Mut. Water Co.*, 33 P.3d 799, (Colo. 2001), the Supreme Court describes the limited nature of retained jurisdiction over an augmentation or change of water right decree:

The General Assembly intended that the retained jurisdiction provision of the decree would function as a test period for operation of the change or augmentation plan, in order to test the prediction and finding of non-injury the water court made upon entry of the judgment and decree. If other water rights thereafter experience water shortages resulting from failure to implement the protective conditions, or because the protective conditions adopted in the judgment and decree did not sufficiently protect against injury, the water judge on a sufficient showing of injury reopens the inquiry into protective conditions or, in the alternative, extends the period of

retained jurisdiction so that the test period can operate longer. In contrast, historic consumptive use is capable of evidentiary resolution in the process of considering and entering the judgment and decree; exercise of the retained jurisdiction provision is not the context for reopening these determinations. (at 810).

350. Since briefing and argument in this case, the Supreme Court has issued its opinion in *Application for Water Rights of the Upper Eagle Regional Water Authority*, decided May 24, 2010. (09SA168), where the court described the purpose of retained jurisdiction over an augmentation plan as follows:

The General Assembly has provided that all augmentation plan decrees include a retained jurisdiction period necessary or desirable to preclude and remedy injury and that the water court should extend retained jurisdiction until such time as non-injury is conclusively proved.

In the context of previous statutory expansions of “retained jurisdiction” over an augmentation plan, this opinion’s explanation of the General Assembly’s intention strongly supports this Court’s interpretation of the breadth and scope of retained jurisdiction over a plan of water management as set forth below. The difficulties described in the *Upper Eagle* case, where the engineering issues are vastly simpler than those posed by this Amended Plan, underscore the wisdom of allowing the Court to retain jurisdiction over the operation of the plan of water management.

351. Section 37-92-501(4) directs the State Engineer to consider and meet multiple goals in regulating the aquifers in Division 3. In SB 04-222, the General Assembly clearly recognized that reliance solely upon augmentation plans would not be adequate or desirable to address the non-linear complexity of the Rio Grande Basin. Accordingly, the language of section 37-92-501(4) contains none of the qualifying or limiting language found in section 37-92-304(6). Instead, the General Assembly recites broad, ambitious goals for continuing the conjunctive-use practices prevalent in Division 3, grants the State Engineer “wide discretion” to permit continued use of underground water and requires that the State Engineer recognize the various goals described elsewhere.

352. The General Assembly recognized both the advantages of a plan of water management and the complexity involved when it defined the Court’s retained jurisdiction over a plan of water management in 501(4)(c):

The water judge shall retain jurisdiction over the water management plan for the purpose of ensuring the plan is operated, and injury is prevented, in conformity with the terms of the court’s decree approving the water management plan.

The language of the statute is broad and without time limitation. It authorizes the Court to reconsider, enforce and require alteration or even termination of a plan if it fails to

prevent injury or is not operated in accordance with the terms of the Court's decree and the plan itself. The Court must presume the General Assembly understood previous case law and the statutory language cited above limiting the Court's role in oversight of augmentation plans, and that the General Assembly thus intended to grant the broad power of oversight set out in the plain language of the statute.

353. Each side has expressed concerns about this statutory grant of retained jurisdiction. Supporters fear being dragged to court over every decision or, even worse, the Court attempting to second guess or micro-manage decisions of the Subdistrict. Opposers fear the Court will approve the Subdistrict, granting it freedom from regulation of its wells, and then take a "hands-off" view allowing practices that fail to fully remedy the injurious depletions or accomplish the other goals of the Amended Plan.

354. The General Assembly understood, in enacting the provisions of SB 04-222, that it was permitting a degree of flexibility for the subdistricts and to the State Engineer that requires access and recourse to the water court for protection of the water users within and outside the plan. The General Assembly had guidance on the limits of the water court's discretionary powers and the "water rule power" found in *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50 (Colo. 2003), which held the then existing provisions of the 1969 Act did not provide authority for the State Engineer to approve "replacement plans" that are not conditioned on an augmentation plan application in the water court. The General Assembly chose to create a means for more flexibility in addressing injurious depletions in Division 3 by allowing plans of water management that do not require the same steps as an augmentation plan, but with protection provided to the injured senior water users by ongoing retained jurisdiction of the water court. The absence of the requirement for a "no injury" finding before approving of the plan and the broad grant of retained jurisdiction reflect conscious choices of the legislature. When looking at the complexity of the basin and the demanding requirements for management of the Confined and Unconfined Aquifers to attain sustainability, the General Assembly found it necessary to provide both for flexibility in addressing annual operations and for recourse to the water court if issues arise. In reviewing interrelated statutory sections, the Court must "endeavor to give consistent, harmonious, and sensible effect to the statutory scheme as a whole." *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50 (Colo. 2003); *Bynum v. Kautzky*, 784 P.2d 735, 738 (Colo.1989). This interpretation of the statute gives "effect to the legislative intent motivating the enactment of this statute." See, *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50 (Colo. 2003).

355. At the same time, while the statutes grant the Court broad jurisdiction over the approval and operation of the Amended Plan, it would not be appropriate for the Court to insert itself into the day-to-day operation of the Subdistrict, just as it is not the role of the Court to re-write the plan or the balance of its objectives, so long as they comport with the constitution and the statutory framework of section 37-92-501(4). The Court will not substitute its own judgment for that of the District, Subdistrict, State or Division Engineers in terms of operational decisions absent evidence that the Subdistrict is failing to comply with the terms and conditions of the Amended Plan. The

Court anticipates that the operation of the Amended Plan will be a cooperative effort between the Subdistrict, the State and Division Engineers and the water users in the Subdistrict.

356. With the notice requirements and the opportunity to present concerns and objections, including concerns that an annual replacement plan fails to address injurious depletions in time, place and amount, to the State Engineer and to the water court, senior water users are better protected from injury over time than they would be by the limited opportunities to object to the calculation of no-injury as provided for by augmentation plans. This broad, robust retained jurisdiction over a plan of water management assures that procedurally and substantively senior water users will have ample opportunities to present their concerns and objections and to appeal decisions of the State Engineer which they oppose.

357. The Court's approval of this Amended Plan with Terms and Conditions will begin a new era in water management for the Subdistrict and for the Rio Grande Basin. It is a time full of promise but also pitfalls. The Court encourages all the water users in the basin to participate in the open and public process that the Subdistrict must utilize as it makes its operational decisions. It may well be that some of the loudest naysayers will make some of the best suggestions for improvements. No one should expect that the first few years will be effortless, smooth sailing. The Court has no doubt that the terms the Court has imposed may make some supporters wonder if this was the correct path. This Court has repeatedly stated that it agrees with the long-term vision of SB 04-222 for a sustainable water supply in each aquifer system of the Rio Grande Basin where there is "continued use of underground water consistent with preventing material injury to senior surface water rights."³¹ While the Court cannot prevent all disputes regarding the operation of the Amended Plan, it is confident that its retained jurisdiction can ensure all water users the benefit of the intended operation of the Amended Plan and will provide an efficient and adequate forum for review of disputes.

R. Procedural Protections, Notice and Timeframes

358. In order to provide clear procedural steps to ensure notice and transparency in the operations of the Subdistrict, the Court will require as terms of its approval, and thus orders, certain additional provisions to clarify the notice and review processes described in the Amended Plan.

359. NOTICE RE MEETING ON ANNUAL REPLACEMENT PLAN: The Subdistrict shall publish notice seven (7) days before the Subdistrict holds a meeting to take action on the terms or the approval of any Annual Replacement Plan. This notice shall be published both in a local newspaper of general circulation and on the District's website (www.rgwcd.org). The proposed Annual Replacement Plan shall also be posted to the website, understanding that modifications of the proposal may occur

³¹ § 37-92-501(4)(a).

during the meeting. A copy of the proposed Annual Replacement Plan and the Notice described above shall also be provided by either first class mail or email to everyone on the Division 3 substitute supply plan notification list established pursuant to section 37-92-308(6).

360. FILING OF ANNUAL REPLACEMENT PLAN: Upon the Subdistrict's approval of an Annual Replacement Plan in accordance with the terms of the Amended Plan, the Court orders that the Subdistrict submit the Annual Replacement Plan and its underlying documentation to the Court contemporaneously with its submittal of the same to the State and Division Engineers.

361. POSTING OF ANNUAL REPLACEMENT PLAN: The Annual Replacement Plan adopted shall also be posted to the District's website.

362. NOTICE OF ACTION ON ANNUAL REPLACEMENT PLAN BY STATE ENGINEER: The State Engineer shall review the proposed Annual Replacement Plan pursuant to the statutory mandates, constitutional requirements and the provisions of any rules and regulations adopted in Division 3. The State Engineer shall consider any letters, comments or other objections submitted by water users regarding the adequacy of the Annual Replacement Plan and, in its discretion, may elect to hold or not hold such public hearing as the State Engineer deems appropriate or necessary. The State Engineer shall notify the Court and the Subdistrict of his approval or disapproval of the Annual Replacement Plan and any additional terms he has imposed on the plan. The District will post notice of the State's approval on its website.

363. CHALLENGES TO TERMS OF ANNUAL REPLACEMENT PLAN: Any party raising challenges to the terms of the Annual Replacement Plan may invoke the retained jurisdiction of the Court within fourteen (14) days of its approval by the State and Division Engineers. Parties seeking to invoke the retained jurisdiction of the Court must do so in writing and must specify the terms and conditions contained in the Annual Replacement Plan that they dispute and the grounds therefore. The Court will review the challenges in an expedited manner to determine whether the challenged portions of the Annual Replacement Plan are reasonable, are not arbitrary or capricious, and are or are not supported by the data included in the submittal of the Annual Replacement Plan and such other documentation as the challenger submits. For example, if a party were to challenge the inclusion of a well included in the Annual Replacement Plan via contract, the Court would review the Subdistrict's showing that the depletions associated with the contract well conformed with properly approved rules and regulations governing the inclusion of wells by contract, that the well's depletions may be correctly calculated by the Response Functions utilized by the Subdistrict, and that replacement water is available to prevent injury to senior water rights by the inclusion of that contract well.

364. BUDGET AND ACCOUNTING: The Court may review disputes regarding the Subdistrict's budget and accounting practices in accordance with the terms of Appendix 4.

365. SUBDISTRICT RULES AND REGULATIONS: The Court will review rules and regulations adopted by the Subdistrict based upon the administrative record developed during the adoption process in Case No. 06CV64. See *discussion of Contract Wells above*.

IV. ADEQUACY OF THE AMENDED PLAN UNDER SECTIONS 37-48-126(2) AND 37-92-501(4)

366. In considering objections to the Amended Plan, the Court must first determine whether it is a “comprehensive and detailed plan” that includes the manner of utilization of any improvements or works in any plan of augmentation or plan of water management as required by section 37-48-126(1).

367. During the first trial, this Court approved many aspects of the Plan which are unchanged or are altered only with respect to timelines in the Amended Plan. The Court reaffirms its approval of the overall objectives of the Amended Plan to utilize active management of the aquifers “to go beyond the limitations of augmentation plans to achieve the “maximum flexibility” mentioned in *Fellhauer* while protecting the constitutional doctrine of prior appropriation.”³² The Court reiterates its approval of the fallowing of acreage, as the evidence at the first trial supported the contention that “a significant step towards aquifer sustainability can be achieved by the fallowing of previously irrigated land, and that it is estimated that fallowing up to 40,000 acres would result in both stabilizing and recovering the Unconfined Aquifer within the Subdistrict.”³³ Similarly, the Court reaffirms its approval of the goal of recovery of the Unconfined Aquifer and maintenance of the aquifer in the range of 200,000 to 400,000 acre-feet below the level on January 1, 1976. See February 2009 Order ¶116.

368. At trial, it became clear that no amount of detail would suffice to satisfy the Objectors that this plan or any variant of it meets the statutory requirement of a “comprehensive and detailed plan.” The Court rejects the notion that any plan of water management must predict and address all imaginable circumstances and plan for all imaginable contingencies. Such a requirement undermines the critical need for flexibility in the operation of groundwater management subdistricts. “Management” will involve choices and judgments, be they sound engineering judgment or managerial prioritization among the goals of this bold and ambitious plan.

369. As noted earlier, Acequia Objectors would have the Amended Plan provide the kind of analysis of replacement water required for in an augmentation plan before the Plan is approved. Absent such showing, they object to the Court’s approval of the Amended Plan. Thus the entire process for determining the Annual Replacement Plan described previously is unsatisfactory to them.

³² February 2009 Order, ¶ 114.

³³ February 2009 Order, ¶ 115.

370. The Court addressed this objection in part in the February 2009 Order, ¶¶ 208 –210 and by implication in the previous section. The pertinent sections of the February 2009 Order are reproduced under ¶ 51 on pages 16-17 of this Order. The General Assembly has directed that the State Engineer manage and regulate Division 3 in accordance with the principles set out in section 37-92-501(4). The limitations of augmentation plans as management tools have become obvious to water users. The General Assembly specifically authorized plans of water management to overcome those limitations and, in so doing, directed that the State Engineer “shall have wide discretion.” The use of Annual Replacement plans in Division 3 provides flexibility and adaptability to changing climatic conditions and incorporates the evolving understanding of the basin. The process clearly draws upon the State Engineer’s experience with Division 2’s Rule 14, State Engineer’s Amended Rules and Regulations Governing Diversions and Use of Tributary Ground Water in the Arkansas River Basin (“Arkansas River Rules”), which has successfully allowed the State Engineer flexibility in his review of large augmentation plans in that division.³⁴

371. The Subdistrict No. 1 Amended Plan directly confronts the problems resulting from overappropriation and drought in the Closed Basin and the San Luis Valley as a whole. The Amended Plan includes a focus upon ensuring that injurious stream depletions resulting from groundwater use are accurately calculated and replaced. In developing the Original Plan, the Subdistrict board of managers “worked out a complex financial plan to reduce groundwater use and retire irrigated lands....This aspect of the Plan materially promotes the sustainability of the Unconfined Aquifer.” February 2009 Order, at ¶ 170.

372. The Amended Plan the Subdistrict board of managers developed is a comprehensive and detailed plan that specifically outlines the methodology the Subdistrict will utilize to calculate and replace injurious stream depletions. The Amended Plan acknowledges that replacing injurious stream depletions to senior surface water rights is a priority, thus meeting the requirements of sections 37-92-502(2), 37-92-501(4)(a)(IV). To the extent the Court finds that the Amended Plan fails to address the problem of ongoing depletions from past pumping, the Court conditions approval of the Amended Plan upon the appropriate remedy of these depletions as well.

³⁴ Rule 14 of the State Engineer’s Amended Rules and Regulations Governing Diversions and Use of Tributary Ground Water in the Arkansas River Basin (“Arkansas River Rules”). See Exhibit S-31 in 2009 trial, which provides in part:

If a well user or entity acting on behalf of well users who seeks approval of a plan to divert tributary groundwater pursuant to these Rules does not know every source of water to be used as augmentation water in a plan or the amount of augmentation water available by April 1, 1996 or March 1 of years thereafter, the state and division engineers may grant temporary approval of a plan until June 1 upon such terms and conditions as, in the opinion of the state and division engineers, will be adequate to prevent out-of-priority depletions to senior surface water rights in Colorado and depletions to usable Stateline flow until the well user or entity acting on behalf of well users can provide a complete description of the plan.

373. The Amended Plan similarly acknowledges the critical importance of utilizing the aquifer system, in a sustainable manner, as an underground reservoir, thus meeting the requirements of section 37-92-501(4)(a)(I) and (II). The Amended Plan's fee structure is rationally related to the Subdistrict goals and objectives, and the Amended Plan's strategies to implement the goals and objectives remain reasonable and are supported by material contained in the 2008 and 2009 Administrative Records.

374. The Court finds the Amended Plan to be a cooperative, thoughtful plan. It is consistent with the purposes and goals set out in SB 04-222; and while no single subdistrict can satisfy or bring about all the conditions described in section 37-92-501(4)(a) and (b), this Amended Plan is in alignment with all of the purposes. In particular, the Amended Plan for Subdistrict 1 seeks to:

- (1) address injurious depletions to senior surface rights resulting from pumping within the Subdistrict, (and with the Terms and Conditions of this Order does so);
- (2) recover and maintain the Unconfined Aquifer at levels between 200,000 and 400,000 acre-feet below the storage level that existed January 1, 1976, within twenty years, which brings with it the benefits associated with a reasonable and predictable depth to water and the benefits of being able to use the aquifer as a valuable storage reservoir;
- (3) reduce acreage in production and thus reduce actual pumping by providing economic incentives to fallow 40,000 acres over ten years;
- (4) effectuate sustainability of all the aquifers;
- (5) contribute to a complete solution for protection of the artesian pressure in the range that occurred during the period from 1978 through 2000, as provided in 501(4)(a)(III), by reduction of the actual pumping from the Unconfined Aquifer and also by inclusion of some Confined Aquifer wells in the plan as, at least, an interim, if not long-term way to address the basin-wide issues regarding loss of artesian pressure in the Confined Aquifer.

375. The Court has reviewed the quasi-legislative Amended Plan to ensure it is "not unreasonable and arbitrary" and bears a rational relationship to the legitimate state objectives set forth in the statutory framework before the Court. The Plan is presumed valid, and the challengers have the burden to demonstrate its invalidity. *Cf. Eagle Peak Farms*, 919 P.2d at 217. The Court has not substituted its judgment for that of RGWCD. Rather, the Court has examined whether, in enacting the Plan, RGWCD: (1) violated constitutional or statutory law; (2) exceeded its authority; or (3) lacked a basis in the record for its provisions.

376. In sum, the Amended Plan together with its Appendices, along with the added Terms and Condition imposed by this Court regarding replacement of lagged depletions, annual and summary reporting, and other minor terms, contain sufficient detail regarding the operation of the Amended Plan, including the operation of the Annual Replacement Plan, to allow the Court to conclude that both procedurally and substantively the Plan will operate as intended to prevent injury to senior water users, to prevent unreasonable interference with the state's ability to fulfill its obligations under the Rio Grande Compact, and to provide procedural protections for all affected parties. In 2006CV64, the Court approves the Amended Plan subject to the Terms and Conditions set forth below.

V. THE STATE ENGINEER'S APPROVAL OF THE AMENDED PLAN FAILS TO CONFORM WITH THE LAW AFTER WAS

377. In the February 2009 Order, this Court ruled that the Original Plan was insufficiently detailed and referred the Original Plan back to the board of managers for amendment consistent with the February 2009 Order. Therefore, this Court did not reach the question of whether the State Engineer's approval of the Original Plan was within his statutory authority. As the Court has now found, the Amended Plan with the Terms and Conditions imposed by this order is sufficiently detailed and meets the requirements of section 37-48-126(1). The Court will now address the State Engineer's approval of the Amended Plan.

378. The State Engineer's approval of a plan of water management is authorized by section 37-92-501(4)(c):

The state engineer shall not curtail underground water withdrawals from aquifers in division 3 that are included in a ground water management subdistrict created pursuant to section 37-45-102 or 37-48-108 if the withdrawals are made pursuant to a ground water management plan adopted by the subdistrict that meets the requirements of paragraphs (a) and (b) of this subsection (4).

Section 37-92-501(4)(a) then incorporates the requirements of section 37-92-501(2), which in turn incorporates the requirements of section 37-92-502(2).

379. Judicial review of the State Engineer's approval of a subdistrict plan takes place in the water court and is the same as that for challenges to a rule or regulation. See section 37-92-501(4)(c) and section 37-92-501(3)(a). C.R.S. 37-92-501(4)(c) also governs the Court's hearing on objections to the State Engineer's approval of the Plan in Case No. 07CW52. Section 37-92-501(4)(c) provides that "judicial review of such approval shall be governed by section 37-92-501(3)(a), which provides: "Any person desiring to protest a proposed rule and regulation may do so in the same manner as provided in section 37-92-304 for the protest of a ruling of a referee."

380. The State Engineer's approval of a plan of water management is entitled to the same presumption of validity as a rule or regulation promulgated by the State

Engineer. The Amended Plan, like rules and regulations of the State Engineer, is presumed to be valid until shown otherwise by a preponderance of the evidence. *Kuiper v. Well Owners Conservation Ass'n.*, 176 Colo. 119, 139, 490 P.2d 268, 277 (1971); *Thompson v. Consolidated Gas Utilities Corp.*, 300 U.S. 55, 57 S.Ct. 364, 81 L.Ed. 510 (1937). *Cotton Creek Farms v. Simpson and Rio Grande Water Conservation District*, 181 P.3d 252 (Colo. 2008). The Court's role in conducting the review is to determine whether the rules "have a reasonable basis in law." *Alamosa-La Jara Water Users*, 674 P.2d at 925. The Objectors to the State Engineer's approval of the Plan in Case No. 07CW52 bear the burden of proving by a preponderance of the evidence that the State's approval of the Plan should be rejected.

381. However, a court's deference to policy determinations in rule-making proceedings does not "extend to questions of law such as the extent to which rules and regulations are supported by statutory authority." *Alamosa-La Jara Water Users Protection Ass'n v. Gould*, 674 P.2d 914, 929 (Colo. 1984), *Cotton Creek Farms v. Simpson and Rio Grande Water Conservation District*, *supra*.

382. In the previous trial in this matter, former Chief Deputy State Engineer Ken Knox testified extensively regarding the Original Plan's compliance with the statutory criteria in sections 37-92-501 and 502. *Testimony of Kenneth Knox* (Oct. 30, 2008, at p. 706 – 19). The Court finds that the testimony of Dr. Knox remains relevant to the Amended Plan as the Amended Plan itself substantially conforms to the Original Plan and Dr. Knox's testimony continues to relate to the Amended Plan. Further, the current State Engineer Dick Wolfe testified in the most recent trial, and his expert report states, that the Amended Plan complies with the statutory requirements. Exhibit 111, Opinion 1. The Court agrees with Mr. Wolfe that in most substantive aspects, the Amended Plan substantially conforms with the suggestions in this Court's February 2009 Order. Further, the Court finds that the Appendices attached to the Amended Plan contain sufficient detail and provide sufficient guidance and restrictions to constrain the discretion of the State and Division Engineers, while still allowing the State and Division Engineers to apply their best engineering and administrative judgment. The Amended Plan acknowledges the replacement of injurious stream depletions as a priority, and the Amended Plan is a "comprehensive and detailed plan."

383. Objectors raised many legal and factual arguments regarding the Amended Plan, which the Court has addressed above; and the Court has agreed that the Amended Plan fails to meet the applicable statutory criteria of sections 37-92-501 and 502 by not providing for full replacement of ongoing injurious depletions for past pumping of subdistrict wells.

384. In light of the ruling of the Supreme Court in *Well Augmentation Subdistrict of the Central Water Conservancy District and South Platte Well Users Association v. City of Aurora, et al.*, 221 P.3d 399 (Colo. 2009), and this Court's conclusions regarding the failure of the Amended Plan to address ongoing depletions from past pumping, the Court finds that the State Engineer exceeded his authority under

section 37-92-501(4)(c) in approving the Amended Plan by not requiring that the Amended Plan address full replacement of ongoing depletions from past pumping. Therefore, the Court must disapprove the State Engineer's approval of the Amended Plan as presented to it. However, since the Court has addressed this by way of a Term and Condition of Approval of the Amended Plan, the Court conditionally approves the action of the State Engineer in all respects except those set out in the terms and conditions for approval of the Amended plan outlined below.

385. The Court requests that the State Engineer formally reconsider the Amended Plan as modified by the Terms and Conditions imposed by the Court. The State Engineer should file with this Court his formal approval or disapproval of the Amended Plan with Terms and Conditions within thirty days.

VI. THE COURT APPROVES THE AMENDED PLAN WITH TERMS AND CONDITIONS

386. In its Findings and Conclusions above, the Court has stated its approval of the Amended Plan in ALMOST all of its material aspects. At the time of the first trial, there was considerable discussion of whether the statutory scheme should be read narrowly to permit the Court only three options; approve, deny or remand a proposed plan. At first reading, these options seem plausible and consistent with the statutory language. However, in evaluating the relationship of the statutory framework for approving rules and regulations, the statutory framework for approval of a plan of augmentation, and the statutory framework for creation and approval of a subdistrict plan of water management, the Court concludes that it has the authority to condition approval of a plan on terms and conditions and that the statutory framework would be unworkable without such authority. The General Assembly provided that:

The water judge shall retain jurisdiction over the water management plan for the purpose of ensuring the plan is operated, and injury is prevented, in conformity with the *terms of the court's decree* approving the water management plan.

Section 37-92-501(4)(c).

387. In construing the meaning or scope of a statutory term, the Court is to give effect to the intent of the legislature. *Ceja v. Lamire*, 154 P.3d 1064 (Colo. 2007); *Lakeview Assocs. v. Maes*, 907 P.2d 580, 584, (Colo. 1995). The Court must first examine the language of the statute itself. *Id.* If the statutory language is unambiguous, there is no need to resort to interpretive rules of statutory construction. *Ceja v. Lamire, supra*; *Resolution Trust Corp. v. Heiserman*, 898 P.2d 1049, 1054, (Colo. 1995). The Court must interpret every word, rendering none superfluous. *Colo. Water Conservation Bd. v. Upper Gunnison River Water Conservancy Dist.*, 109 P.3d 585, 597, 599 (Colo.2005). The Court presumes that the legislature acted with full knowledge of relevant judicial precedent. The broader role for the water court's retained jurisdiction described earlier and the language above supersedes the seemingly limited choices of "adopt, reject, or refer back" in section 37-48-126. To the degree that there is ambiguity in these

sections, the Court looks to a variety of other factors including legislative history. §2-4-203, C.R.S. “The intention of the legislature will prevail over a literal interpretation of the statute that leads to an absurd result.” *AviComm, Inc. v. Colo. Pub. Util. Comm’n*, 955 P.2d 1023, 1031 (Colo.1998).

388. Under Section 37-48-126, the Court is directed to hear objections to a plan adopted by the Subdistrict and approved by the District and to “adopt, reject, or refer back the plan to the board of directors.” The Court does not interpret that statutory authority as limiting its authority as a court of general jurisdiction. The Court, therefore, may condition approval or rejection of a plan and impose “terms” for approval as directly provided for by section 37-92-501(4)(c). A contrary interpretation would violate the basic principles of statutory interpretation. When the General Assembly provides that the Court may impose “terms,” it understands that language invokes the power of the Court to condition its approval. Any other resolution of the conflict between the statutory languages would render the use of the word “terms” as superfluous. Moreover, it is evident that plans of water management are intended to be complex and are intended to weigh various competing needs and factors. Limiting the ability of the water court to impose terms would be in direct conflict with the goals of SB 04-222 and the 1969 Act, and would be inconsistent with the notion of “wide discretion” with the State Engineer. As a practical matter, it could prevent, or at least delay for many years, approval of any plan of water management. It would create huge, needless expense to all parties. SB 04-222 clearly expressed the intent of the General Assembly to hasten the integration of groundwater and surface rights, not to delay it endlessly. The Court concludes that it may approve the Amended Plan upon those terms and conditions articulated in this ruling.

389. In addition to the requirement for full replacement of ongoing injurious depletions, the Court has noted points where the Amended Plan should provide more extensive notice or procedural protection for interested parties. The Court recognizes that it could remand the plan to the Subdistrict with directions to amend it further in specific ways. However, that course of action would require unnecessary further proceedings before the Subdistrict, District and this Court and would delay the implementation of the Amended Plan. For the reasons already stated, this is both unnecessary and undesirable.

390. After concluding that the Court may impose terms and conditions, the Court considered whether it is appropriate to do so in this case. During the extended time this Court has considered the evidence and arguments presented, it became apparent that the Amended Plan’s failure to provide for replacement of ongoing injurious depletions from past pumping would require that the Court reject the plan or refer it back to the Rio Grande Water Conservation District and the Subdistrict Board of Managers or would require that the Court impose terms and conditions to require replacement of such ongoing injurious depletions. Either of these choices has undesirable consequences.

391. Because the Court has approved the concept of this Amended Plan and because the Court has found most aspects of it to be lawful and thoughtful, the prospect of referring it back for a second time seemed like a choice to be avoided if possible. As stated elsewhere, it has already been forty years since the 1969 Act. Moreover, water

users throughout the San Luis Valley are waiting to proceed with other plans of water management and need guidance. The Court has considered and rejected the suggestion that the Court should refer the Amended Plan back to the Rio Grande Water Conservation District to allow the rules to be put in place prior to adoption of the plan. Even though this would eliminate many of the arguments Acequia Objectors have made (i.e., the argument contending that in the absence of rules, the plan must contain what ought to be in rules.) the resulting delay and expense outweighs any benefit of waiting. Moreover, the State Engineer has drafted rules and regulations for existing wells but is waiting for the Court's decision on this subdistrict plan before enacting those rules and regulations.

392. On the other hand, the Court recognizes that imposing a term requiring replacement of ongoing injurious depletions from past pumping will strain the financial abilities of the Subdistrict and could jeopardize the timelines for the fallowing of land and thus the restoration of the Unconfined Aquifer. Some Supporters may well feel the Amended Plan with these Terms is not the plan they "supported."

393. Finally, in order for the Subdistrict to complete any of the steps set out in the Amended Plan, it is necessary for the Subdistrict to certify to the county treasurers the taxes it is asking the treasurer to collect. As a practical matter, no funds will be received until well into 2011. The Subdistrict has, therefore, asked that the implementation of the replacement of injurious depletions begin in 2012 so that funds can be accumulated and leases, contracts and other necessary steps can be accomplished to address the requirements of this order. This is both reasonable and appropriate. The General Assembly does not intend absurd results or impossible conditions. While this Court has not been willing to phase in replacement of depletions prospectively, as Supporters desired, the Court is equally unwilling to require the impossible of the Subdistrict. The Court, therefore, imposes a term and condition that implementation of the requirement for replacement of depletions, current and lagged, shall begin with the 2012 irrigation season.

394. This case involves the first interpretation of the provisions in SB 04-222 related to subdistrict plans of management. There are numerous aspects of this ruling that each side may choose to challenge. These issues will not be altered by referral back. The General Assembly recognized the need for active management of the Unconfined and Confined Aquifers in the San Luis Valley, directed the State Engineer to proceed with rules, and enabled water users to proceed with plans of water management. Approval of this first Amended Plan of Water Management for Subdistrict No. 1 will allow all these processes to proceed and will allow legal challenges to be finally resolved if parties deem that appropriate. Consequently, the Court chooses to approve the Amended Plan with Terms as set out below.

VII. DECREE

395. Based upon the preceding Findings of Fact and Conclusions of Law, the Court hereby adopts and approves the Amended Plan; subject, however, to the Terms and Conditions set forth in the following paragraphs which are dictated by the evidence and shall be regarded as integral parts of the Amended Plan.

396. The Court further requests that the State Engineer formally reconsider the Amended Plan as modified by the Terms and Conditions imposed by the Court. The State Engineer should file with this Court his formal approval or disapproval of the Amended Plan with Terms and Conditions within thirty days.

TERMS AND CONDITIONS OF APPROVAL

1. **DUTY TO REPLACE ALL INJURIOUS DEPLETIONS:** Beginning in the year 2012, the Subdistrict shall replace all injurious depletions exceeding 50 acre-feet per year in time, location and amount, including ongoing injurious depletions resulting from past pumping.

2. **REVIEW OF ANNUAL REPLACEMENT PLAN:** The State and Division Engineers shall approve an Annual Replacement Plan for Subdistrict No. 1 only if the Subdistrict has presented sufficient evidence and engineering analysis to predict where and when injurious stream depletions will occur and how the Subdistrict will replace those injurious depletions to avoid injury to senior surface water rights.

3. **NOTICE OF MEETING ON ANNUAL REPLACEMENT PLAN:** The Subdistrict shall provide notice of each meeting at which an Annual Replacement Plan will be considered for approval, at least seven (7) days in advance of such meeting, in order to provide interested parties with notice and the opportunity to participate in such consideration. This notice shall be published both in a local newspaper of general circulation and on the District's website (www.rgwcd.org). The proposed Annual Replacement Plan shall also be posted to the website. A copy of the proposed Annual Replacement Plan and the Notice described above shall also be provided by either first class mail or email to everyone on the Division 3 substitute supply plan notification list established pursuant to section 37-92-308(6).

4. **FILING OF ANNUAL REPLACEMENT PLAN:** After the meeting on the Annual Replacement Plan, the Subdistrict shall submit the final, approved Annual Replacement Plan and its underlying documentation to the Court contemporaneously with its submittal of the same to the State and Division Engineers.

5. **WEB-POSTING OF ANNUAL REPLACEMENT PLAN:** The final, approved Annual Replacement Plan and its underlying documentation shall also be posted to the District website.

6. ANNUAL REPLACEMENT PLAN SHOWING OF NO INJURY: The Annual Replacement Plan submitted by the Subdistrict to the State and Division Engineers for review and approval shall identify the sources, availability and amounts of replacement water the Subdistrict will use to remedy injurious stream depletions during the coming year and shall demonstrate the sufficiency of such water to remedy such injurious depletions.

7. NOTICE OF ACTION ON ANNUAL REPLACEMENT PLAN BY STATE: The State Engineer shall review the proposed Annual Replacement Plan pursuant to the statutory mandates, constitutional requirements and the provisions of any rules and regulations adopted in Division 3. The State Engineer shall consider any letters, comments or other objections submitted by water users regarding the adequacy of the Annual Replacement Plan and, in its discretion, may elect to hold or not hold such public hearing as the State Engineer deems appropriate or necessary. The State Engineer shall notify the Court and the Subdistrict of its approval or disapproval and any terms imposed with regard to an Annual Replacement Plan. The District will post notice of the State's approval on its website.

8. CHALLENGES TO TERMS OF ANNUAL REPLACEMENT PLAN: Any party raising challenges to the terms of the Annual Replacement Plan may invoke the retained jurisdiction of the Court within fourteen (14) days of the plan's approval by the State and Division Engineers. A party seeking to invoke the retained jurisdiction of the Court must do so in writing and must specify the terms and conditions contained in the Annual Replacement Plan that the party disputes and the grounds therefore. The Court will review the challenges in an expedited manner to determine whether the challenged portions of the Annual Replacement Plan are reasonable, are not arbitrary or capricious, and are or are not supported by the data included in the submittal of the Annual Replacement Plan and such other documentation as the challenger submits.

9. BUDGET AND ACCOUNTING: The Court may review disputes regarding the Subdistrict's budget and accounting practices by the Subdistrict in accordance with the terms of Appendix 4.

10. SUBDISTRICT RULES AND REGULATIONS: The Court will review rules and regulations adopted by the Subdistrict based upon the administrative record developed during the adoption process in Case No. 06CV64. *See discussion of Contract Wells above.*

11. WELL DATABASE: The Subdistrict's Well Database, Appendix 3 to the Amended Plan, shall be updated by the Subdistrict annually. The Subdistrict must report each Plan Year's updated Subdistrict Well Database to the State and Division Engineers as a part of the Annual Replacement Plan, and the Annual Replacement Plan must incorporate all of the changes to the Subdistrict Well Database.

12. RESPONSE FUNCTIONS: If the conditions used to determine Response Functions change materially, the Subdistrict shall evaluate the Response Functions and

change these if necessary. The Subdistrict shall address the suitability of the Response Functions in each Annual Replacement Plan and shall include an engineering report addressing what conditions have changed, whether the then-existing Response Functions are adequate for the changed conditions and, if not, proposing adequate Response Functions.

13. MODEL DEVELOPMENT AND INJURIOUS DEPLETIONS: If future runs of the RGDSS groundwater model show stream depletions of more than 50 acre-feet per year to streams other than the Rio Grande, the Conejos River, and La Jara Creek, the Subdistrict shall replace injurious depletions caused by Subdistrict Wells to such streams. The Subdistrict shall address the need to provide replacement water, if the model runs dictate this, and how such replacement will occur in its Annual Replacement Plans.

14. CONTRACT WELLS: The Subdistrict shall not include any non-Subdistrict Wells within the protection of the Amended Plan unless and until it has adopted rules governing such inclusions and submitted these rules to the Court and has included an analysis in its Annual Replacement Plan of the effect of including such wells. The board of managers will provide the initial public notice for the adoption of the rules to effectuate section II.C. of the Amended Plan within six (6) months of this Order. A contract shall include a certificate from the technical advisory committee affirming that the inclusion of a particular well by contract can be accomplished and specifically stating whether or not it will require recalculation of Response Functions. If new Response Functions must be calculated, doing so shall be a prerequisite for the contract to be effective.

15. CONFINED AQUIFER WELLS: At such time as a subdistrict is formed for Confined Aquifer wells, the engineering consultants shall conduct an engineering evaluation of whether the continued inclusion of Confined Aquifer wells in the Subdistrict is appropriate and provide a comparison illustrating any differences and their relation to the basin-wide objectives of SB 04-222 and to the calculations of injurious depletions to senior water rights. This evaluation shall be submitted to the State Engineer, posted on the District website and submitted to the Court. The Court reserves the right to require a hearing on this issue if appropriate. At such time as a Confined Aquifer subdistrict is proposed, an analysis from the *technical advisory committee*, including the modelers, shall be filed with the State Engineer and the Court and made publicly available. This analysis will evaluate the options for the Confined Aquifer wells and the effect of those options on the ability of the Subdistrict to replace injurious depletions, the effect of these options on the broader duty to address artesian pressure as required by SB 04-222, and any economic considerations that merit consideration. This issue is subject to the Court's retained jurisdiction and to the ability of the Subdistrict itself to propose changes in the Amended Plan.

16. REVIEW OF ANNUAL REPLACEMENT PLAN: The Court retains jurisdiction for challenges to the State and Division Engineers' actions with respect to the Subdistrict's Annual Replacement Plans provided that such jurisdiction must be invoked

within fourteen (14) days after the State Engineer has taken such action. The District shall post contemporaneous notice of the State and Division Engineer's approval of an Annual Replacement Plan on its website (www.rgwcd.org).

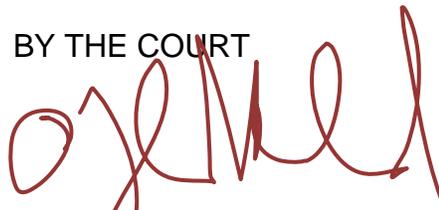
17. ANNUAL REVIEW: Before March 1 of each year, pursuant to Appendix 5, the Subdistrict shall prepare an analysis of how the Amended Plan operated during that year, including analysis of whether all injurious stream depletions were replaced. The Subdistrict shall provide copies of this analysis and supporting documentation to the State and Division Engineers and, at the same time, shall provide these materials to the Court and post the information on its website. The Court retains jurisdiction to review challenges with respect to such analyses; provided that such jurisdiction must be invoked within 30 days after the Subdistrict has submitted such materials to the Court.

18. CUMULATIVE REVIEW: The Subdistrict disclosures at the end of the year shall include, in addition to what is set out in Appendix 5, and the information described in the previous term, annual and cumulative information, including tables and graphing where appropriate, to evaluate the performance of the Annual Replacement Plan and where the Amended Plan stands in relation to the long-term goals of the plan. The state of the Unconfined Aquifer, Confined Aquifer, fallowed land, total pumping numbers and the "state" of the Hydraulic Divide should be explained and displayed in an easy-to-understand format.

19. RETAINED JURISDICTION: The Court retains jurisdiction, pursuant to section 37-92-501(4)(c), to ensure the plan is operated, and injury is prevented, in conformity with the terms of this Court's decree.

DATED this 27th day of May, 2010.

BY THE COURT



HON. JOHN KUENHOLD
Chief District Court Judge
Water Judge, Water Division No. 3