



COLORADO
Division of Water Resources
Department of Natural Resources

Amber Pacheco, Deputy General Manager
Rio Grande Water Conservation District
8805 Independence Way
Alamosa, CO 81101

**RE: 2023 ANNUAL REPLACEMENT PLAN APPROVAL: SPECIAL
IMPROVEMENT SUBDISTRICT NO. 2 OF THE RIO GRANDE
WATER CONSERVATION DISTRICT**

Dear Ms. Pacheco:

Thank you for your April 15, 2023 submission of the Special Improvement District No. 2's proposed Annual Replacement Plan (ARP) for the 2023 Plan Year (**May 1, 2023 through April 30, 2024**).

My staff and I have reviewed the proposed ARP and its appendices, and it is hereby approved. A copy of this approval will be available on the DWR website at:

<https://dwr.colorado.gov/division-offices/division-3-office>

All information and data related to this approved ARP will be available on our website.

Enclosed, please find my approval of the 2023 ARP.

Kevin Rein, P.E.
State Engineer
Director of Division of Water Resources

cc: Division 3



Subdistrict No. 2 ARP Approval: Plan Year 2023

Review, Findings, and Approval of Subdistrict No. 2's 2023 Annual Replacement Plan

Background

Special Improvement District No. 2 (“Subdistrict”), a political subdistrict of the Rio Grande Water Conservation District (“RGWCD”), formed through Rio Grande County District Court in Case 2015CV30050, timely submitted its proposed Annual Replacement Plan (“ARP”) pursuant to its Plan of Water Management (“PWM”) approved by the State Engineer and noticed through Division No. 3 Water Court in Case No. 2018CW3010.

The 2023 Plan Year ARP and its appendices were available for download through a link on the RGWCD website. The ARP, its appendices, and resolutions were provided to the State and Division Engineers on April 15, 2023. Copies of the ARP were made available for viewing at the State and Division Engineers’ offices. The ARP, its appendices, resolutions, the Subdistrict’s Response Functions, and this letter will be posted on DWR’s website. My staff and I have conducted this review of the ARP in accordance with the operational timelines specified in the Court approved Rules Governing the Withdrawal of Groundwater in Water Division No. 3 (the Rio Grande Basin) and Establishing Criteria for the Beginning and End of the Irrigation Season in Water Division No. 3 for all Irrigation Water Rights (“Rules”), Case 2015CW3024.

DWR Review

As set forth in the Rules, I must determine whether the ARP presents “sufficient evidence and engineering analysis to predict where and when Stream Depletions will occur and how the Subdistrict will replace or Remedy Injurious Stream Depletions to avoid injury to senior surface water rights.” (Rules 11.3). Also, “the ARP will include: a list of Subdistrict Wells that will be covered by the ARP; a projection of the groundwater withdrawals from Subdistrict Wells during the current Water Administration Year; a calculation of the projected stream depletions resulting from ground water withdrawals from Subdistrict Wells; a forecast of the flows for the Rio Grande; detailed information regarding the methods that will be utilized to replace or remedy injurious stream depletions during the ARP Year, including any contractual agreements used for replacement or remedy of injurious stream depletions that will be in place; any information regarding the fallowing of Subdistrict Lands; and, documentation that sufficient funds are or will be available to carry out the operation of the ARP.” (Subdistrict PWM, Section 6.1.2). Finally, I must review the ARP pursuant to the statutory mandates, constitutional requirements, rules and regulations adopted in Division No. 3, and any letters, comments, or other objections submitted by water users regarding the adequacy of the ARP.

With the foregoing in mind, I turn to a review of the ARP. It would be unwieldy to include in my review every detail of the thorough ARP, so for the purpose of this letter, I incorporate it

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and its supplements by reference. No letters, comments, or other objections to the 2023 ARP were received.

11.1.1 Database of All Wells to be Covered by the ARP

Structure Identification Number (WDID) (Section 1 of 11.1.1 of the ARP)

A comprehensive list of wells included in the ARP is necessary in order to allow DWR to verify which wells are authorized to operate in accordance with the ARP. To that end, the Subdistrict submitted the most current tabulation of the structure identification number (WDID) of each well included in the Subdistrict (see Appendix A of the ARP). The Subdistrict also supplied a spreadsheet to DWR of the list of Subdistrict Wells as a supplement to the 2023 ARP. Appendix A lists 270 wells which includes three contract wells for 2023 and one well added in the 2022 Preliminary Water Report as a replacement well for an existing Subdistrict Well.

The contract wells accepted by the Subdistrict in 2023 are listed in Appendix B. Contract wells are reviewed for the terms of the contracts, associated permits and decrees for each well, and historical meter records. Any wells that are used for any beneficial uses not authorized by permit and/or decree for those structures cannot be covered by the 2023 ARP and the owners will be notified by separate correspondence.

Wells that have submitted an SWSP and/or started the process of changing an existing permitted/decreed use to a Non-Exempt use described in the participation contract can be conditionally accepted. These wells cannot be operated until the SWSP and/or decree is finalized and approved. Should an SWSP become invalid during the ARP Year or the change of use in a court case be denied, the well can no longer be covered by the ARP and the owners will be notified.

All wells accepted as contract wells for this ARP approval have permitted and/or decreed limits, and they will only be accepted for groundwater withdrawals up to those respective limits. If historical records indicate a pattern of exceedance of these limits in the past, owners of these wells may be notified by separate correspondence that their wells are being conditionally accepted, and that exceedance of the legal limits will not be covered under this ARP. The Subdistrict will be copied on all separate correspondence sent for these purposes.

Other Well Identification Information (Section 2 of 11.1.1 of the ARP)

The requirement to provide the database of wells the Subdistrict has accepted as part of this ARP was satisfied under 11.1.1.1

Subdistrict Wells with Plans for Augmentation (Section 3 of 11.1.1 of the ARP)

The ARP Well List includes some wells that are either fully or partially augmented by an approved plan for augmentation which is administered separately of the Subdistrict's PWM.

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These plans for augmentation associate surface rights with these Subdistrict Wells and other non-Subdistrict wells to remedy some portion or all of each well’s injurious stream depletions. These wells are included in the Subdistrict’s ARP Well List, and if any portion of their legally decreed groundwater withdrawals is not remedied by an individual plan for augmentation, it is subject to Subdistrict fees and the Subdistrict will remedy injurious stream depletions and post-plan injurious stream depletions attributable to the non-augmented portion of a well’s total groundwater withdrawals as part of this ARP. “The Subdistrict and this Plan of Water Management or ARP cannot be used as a source of water for new or expanded plans for augmentation or other replacement plans.” (PWM at 2.4.6)

San Luis Valley Water Conservancy District Augmentation Certificates

The ARP lists two wells (WDID 2010320, Augmentation Certificate 784 & WDID 2009593 Augmentation Certificate 690) as Subdistrict Wells that are partially augmented for existing uses through SLVWCD. Both wells have water rights for augmentation through SLVWCD that covers uses including out-of-season irrigation, commercial, and in-house as well as irrigation rights covered by the Subdistrict.

I have reviewed Appendix A, Appendix B, and Appendix C of the ARP and consulted with staff and find it to be an accurate inventory of Subdistrict Wells that meets the requirements of Rule 11.1.1.

Total Combined Projected Annual Diversion for All Subdistrict Wells (Section 4 of 11.1.1 of the ARP)

For Rio Grande Alluvium and Upper Rio Grande Subdistrict ARP Wells listed in this ARP, total metered groundwater withdrawals per DWR records as of April 7, 2023, for the 2022 Water Administration Year were 12,646 acre-feet. In 2022, the stream flow forecast was similar to the 2017 forecast. Comparing the actual pumping of 2017, the Subdistrict ARP Well groundwater withdrawals in 2023 are projected to be slightly lower, at **11,105 acre-feet**.

Subdistrict Well Metered Pumping (acre-feet)
Entered in Table 2.1.1 & Table 2.2.1 of the ARP

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
15,101	15,835	14,758	13,313	12,539	11,191	11,286	15,942	10,844	13,600	13,685	12,646

The Subdistrict reports that the majority of metered groundwater withdrawals in the Plan Year will be used for irrigation through center pivot sprinklers, 83 percent. Approximately 4 percent of groundwater withdrawals will be applied to flood irrigation and 13 percent of groundwater withdrawals will be applied to other uses.

Expected Methods of Irrigation, the Combined Projected Number of Acres Irrigated and the Total Projected Acreage by Each Irrigation Method (Section 5 of 11.1.1 of the ARP)

The Subdistrict ARP Wells are projected to irrigate approximately 9,200 acres during the Plan Year including 8,200 acres irrigated by center pivot sprinklers and 1,000 acres irrigated

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by flood application. The Subdistrict made this projection based on a review of the breakdown of acres within the Rio Grande Alluvial (RGA) and the Upper Rio Grande (URG) Response Areas under each irrigation type prepared by DWR for inclusion in the RGDSS Groundwater Model.

Non-Irrigation Subdistrict Wells - Calculation of All Projected Withdrawals and Projected Net Groundwater Consumptive Use (Section 6 of 11.1.1 of the ARP)

Included in the ARP Well List are a number of wells with beneficial uses other than irrigation. The Subdistrict utilized information provided by DWR to calculate the consumptive use rates used in the RGDSS Model to calculate stream impacts and returns. Beneficial uses include potato washing, commercial, domestic (subdivision), lawn irrigation and aquaculture. A spreadsheet was prepared by the Subdistrict to calculate the composite Consumptive Use Ratio that is a necessary input in the Response Functions. A spreadsheet of the calculation prepared for use in the 2023 ARP was submitted as supplement to this ARP.

Other Data Necessary to Support the Projected Stream Depletions (Section 7 of 11.1.1 of the ARP)

No other data was provided.

Other Information Required by the State and Division Engineers and Reasonably Necessary to Evaluate the Proposed ARP (Section 8 of 11.1.1 of the ARP)

The supplemental information needed to evaluate the 2023 ARP and provided to the State Engineer included:

1. A resolution from RGWCD approving the Subdistrict 2023 ARP.
2. A resolution from RGWCD to act as a financial guarantor for the Subdistrict.
3. The list of Subdistrict Wells included in the 2023 ARP in spreadsheet format matching the list presented in Appendix A
4. A resolution from RGWCD to allow the Subdistrict to allocate Closed Basin Project water in the 2023 ARP.
5. A spreadsheet showing the Subdistrict's breakdown of "Other" wells used to calculate the composite Consumptive Use Ratio in the Response Function.
6. A spreadsheet of the Response Functions used in this ARP.
7. A Forbearance Yield Analysis. This is a description of the Subdistrict's approach to estimate the probable yield of replacement sources for the various forbearance contracts with ditches under forbearance agreements. A copy of the spreadsheet used in the analysis was provided as supplement to the ARP.
8. Operational Requests to the Division Engineer for the 2023 ARP
 - The Subdistrict requests to aggregate depletions between Stream Reaches as part of the anticipated operation in 2023.

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- The Subdistrict requests to aggregate depletions with other Subdistricts during the 2023 ARP year.
- The Subdistrict requests the Division Engineer allow a portion of the Closed Basin Project (CBP) production that is generated during the irrigation season be used to offset the Subdistrict’s non-irrigation season depletions, though not to exceed the allocation approved by the CBP Operating Committee. This becomes necessary when the depletions owed for all RGWCD Subdistricts combined in any one or more months during the non-irrigation season are greater than the production of the Closed Basin Project production in those months.
- The Subdistrict requests the Division Engineer allow aggregation of overpayment and underpayment of depletions among Subdistricts as determined by Response Function calculations made prior to March 1, 2024 using actual stream flows and actual metered groundwater withdrawals for the prior Water Administration Year.

11.1.2 *Projected Stream Depletions from the Wells Covered by the ARP based on the Applicable Response Function or Approved Alternative Method*

Section 2 of the ARP presents the data utilized to project stream depletions to the Rio Grande as a result of the Plan Year’s groundwater withdrawals from Subdistrict ARP Wells. The Response Function’s outputs identify total projected stream depletions for the Plan Year, a breakdown of the monthly stream depletions for the Plan Year for each of the three reaches of the Rio Grande and a projection of the Post-Plan Stream Depletions calculated as a result of the Plan Year groundwater withdrawals from Subdistrict ARP Wells. The Subdistrict used the current 6P98 Response Functions to calculate projected stream depletions for this ARP.

The April through September streamflow forecasts included in the ARP are made by the Division Engineer and are based upon guidance given by forecasts from the United States Department of Agriculture’s Natural Resources Conservation Service (“NRCS”), the National Weather Service (NWS), and the National Center for Atmospheric Research (NCAR) (Appendix C of the ARP). The annual streamflow forecasts included in the ARP for the Rio Grande are those included in the March 31, 2023 Division Engineer’s Rio Grande Compact Ten Day Report (Appendix C of the ARP).

The NRCS streamflow statistics are calculated over a 30-year period and updated each decade, in agreement with World Meteorological Organization (WMO) standards. This 30-year reference period was chosen to characterize the current hydro climatology at each station. The most recent medians and averages have been updated to include data for the water years 1991-2020. The current year streamflow projection is compared to the 30-year reference period to determine the percent of “normal” streamflow. The NRCS forecasts were reported as percent of the median in this report.

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2023 Stream Flow Forecast - Rio Grande (Section 1 of 11.1.2 of the ARP)

The Subdistrict used the Division Engineer’s streamflow forecast and the data collected from the Division Engineer’s Rio Grande Compact Ten Day Report. This forecast was based upon the NRCS forecast (projected 50% exceedance streamflow at the Rio Grande near Del Norte gaging station for the period April-September), the NWS forecast, and the NCAR forecast. There are differences between the NRCS and the Division Engineer’s forecasts for April through September as shown in the following table. The April - September DWR projected flow for the Rio Grande is 659,200 acre-feet for use in the Response Functions for 2023.

Rio Grande Stream Flow Forecast

Rio Grande Stream Flow Analysis	Apr-Sep Forecast (acre-feet)	% of avg	Estimated Additional (acre-feet)	Jan - Dec Forecast (acre-feet)
	(1)	(2)	(3)	
NRCS, “April 1 st Forecast”, 4/5/2023	625,000	130%		
Division Engineer, Ten Day, 3/31/2023	659,200	137%	90,800	450,000

(1) projected 50% exceedance streamflow at the gaging station

(2) NRCS 30-year average of 480,000 acre-ft used for this calculation (recently adjusted from 515,000 acre-ft)

(3) January through March and October through December

Projected Plan Year Stream Depletions for RGA ARP Wells (Section 2.1 of 11.1.2 of the ARP)

Subdistrict staff predicted stream depletions to the Rio Grande utilizing the Response Functions developed for the Rio Grande Alluvium (RGA) Response Area under the RGDSS Groundwater Model Phase 6P98. The Upper Rio Grande (URG) Response Function was provided to the Subdistrict in 2020 to calculate projected stream depletions for the wells in that area.

The Response Function spreadsheet was built to be used for the whole Response Area. Two instruction sheets were prepared by DWR for additional inputs to the Response Functions when there is a need to use it for individual or groups of wells. The instruction sheet, “How to Use the Application Workbook for a Subset (individual/group) of Wells” (9/23/2015), describes how to adjust the spreadsheet inputs to stream reaches that have been modeled with point source returns to streams. The instruction sheet, “How to Adjust the Application Workbook for use with a Subset of Wells” (10/15/2015), describes how to use the “Ratio Method” for Response Areas where it is necessary to apply this method. The Subdistrict included these instruction sheets with their ARP.

The first step in using the current 6P98 Response Function is to input data for the whole Response Area, i.e., historical groundwater withdrawals for sprinkler irrigation, flood irrigation, “other” pumping with corresponding “other” consumptive use ratios for the years 2011 through 2022 and predicted values for 2023.

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The Subdistrict has elected to use the Response Function spreadsheet for the subset of wells represented by the Subdistrict ARP Wells. The Rio Grande Alluvium Response Area requires adjustments for point source return flows, as shown below.

- Rio Grande Alluvium Response Area - Reach 1 (Rio Grande from Del Norte to Excelsior Ditch) from the Town of Del Norte and the City of Monte Vista.

Using the whole Response Area results, adjustments are made on appropriate pages of the Response Function spreadsheet. The Subdistrict removed all return flows attributable to the Town of Del Norte and the City of Monte Vista's wells from Reach 1 (Rio Grande from Del Norte to Excelsior Ditch) from the appropriate sheets within the RGA Response Function spreadsheet.

Once these preliminary steps are completed, the next step in calculating stream depletions using the Response Functions is updating Table 2.1 to derive the annual net groundwater consumptive use. The consumptive use ratios for sprinkler and flood irrigation used in the Model are standard factors of 83% and 60%, respectively. The consumptive use ratio for "Other" wells is specific to the uses of those wells and can vary widely. The "Other Consumptive Use Ratio" for the whole Response Area is a composite derived from the individual well withdrawals and consumptive uses.

The Subdistrict provided a spreadsheet of "Other" wells included in the Subdistrict ARP Well list as a supplement to the ARP. The spreadsheet shows the individual well groundwater withdrawals and consumptive use factors to explain how the composite ratios were determined for the subset wells represented in Table 2.1.1 and Table 2.2.1 of the ARP.

Historical ARP Well groundwater withdrawal values were entered in Table 2.1.1 for years 2011 through 2022. No adjustments were made by the Subdistrict for groundwater withdrawals of the subset wells for any years prior to 2011. Projected ARP Well groundwater withdrawal values were used for 2023. The Subdistrict has no Recharge that Offsets Groundwater for calculation of the Net Groundwater Consumptive Use. The projected Net Groundwater Consumptive Use for the Plan Year is **7,819 acre-feet**.

Following determination of the Net Groundwater Consumptive Use, the data was incorporated in the ARP Table 2.1.2 to calculate stream depletions for the Plan Year and projected into the future.

The Response Function calculated total stream depletions to the Rio Grande during the Plan Year, due to both past ARP Well groundwater withdrawals and the projected Plan Year ARP Well groundwater withdrawals, are **1,809.6 acre-feet**. The locations of the stream depletions and monthly quantities are also tabulated in ARP Table 2.1.3.

Post-Plan Stream Depletions are estimated to accrue to impacted streams for approximately 7 years. Based on predictions from the Response Functions, the Post-Plan depletions in Table 2.1.4 are a total of **2,706 acre-feet**.

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Projected Plan Year Stream Depletions for URG ARP Wells (Section 2.2 of 11.1.2 of the ARP)

The Subdistrict prepared a separate analysis of the stream depletions for Subdistrict Wells that lie within the URG Response Area. Historical groundwater withdrawal values for URG wells included in the ARP Well List were entered in Table 2.2.1 for years 2018 through 2022. Projected groundwater withdrawal values were used for 2023. The Subdistrict has no Recharge that Offsets Groundwater for calculation of the Net Groundwater Consumptive Use.

The projected URG Net Groundwater Consumptive Use for the Plan Year is **319 acre-feet**.

The URG Response Function calculation of total stream depletions to the Rio Grande during the Plan Year due to both past ARP Well groundwater withdrawals and the projected Plan Year ARP Well groundwater withdrawals is **186.0 acre-feet**. Depletions are owed to the same stream as the RGA Response Function, but the depletions are occurring only to Stream Reach 1.

Post-Plan Stream Depletions are estimated to accrue to impacted streams for approximately 2 years. Based on predictions from the Response Functions, the Post-Plan depletions are a total of **74.0 acre-feet**.

Combined Total Projected Plan Year Stream Depletions for Subdistrict ARP Wells (Section 2.3 of 11.1.2 of the ARP)

Table 2.3.3 of the ARP is the combined output from the RGA and URG Response Functions. Total stream depletions to the Rio Grande during the Plan Year due to both past ARP Well groundwater withdrawals and the projected Plan Year ARP Well groundwater withdrawals are **1,995.6 acre-feet**. The volume of water required to replace the combined Post-Plan Stream Depletions is **2,780.0 acre-feet**.

11.1.3 Description of How Injurious Stream Depletions from Groundwater Withdrawals by Wells Included in the ARP will be Replaced or Remedied

Amounts and Sources of Replacement Water for 2023 Plan Year (Section 1 of 11.1.3 of the ARP)

The Subdistrict has assembled a portfolio of water supplies for the replacement of Injurious Stream Depletions and remedies other than water. The ARP identifies the water rights, their availability and their amounts in Table 3.1 of the ARP.

The adequacy of replacement sources for the ARP Year are dependent upon contracted amounts the Subdistrict has acquired as well as the availability of the source to pay

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depletions in place and time. For purposes of review of adequacy of replacement sources, there are three categories defined below, with examples described for each.

In Storage: Reservoir water in storage under the control of the Subdistrict. This water is available for release at the direction of the Subdistrict.

In Season: Ditch water that will become available to the Subdistrict when in priority during the 2022 irrigation season in the amount of depletion owed to streams daily by the Subdistrict. For some sources, water not used to pay daily depletions may be stored for Subdistrict use later.

On Call: Remedies, such as forbearance, that are available in the amount of depletion owed to streams daily by the Subdistrict, limited to when the forbearance ditch is the calling water right. I note that forbearance depends on climate and actual days when a ditch is the calling water right and the exact yield per year is indeterminate. It is also noted that the amount of forbearance water usable by the Subdistrict is limited by their depletions owed daily to streams. In addition, several Subdistricts are seeking forbearance agreements with the same ditches. DWR considers these potential competing agreements when evaluating forbearance as a replacement source.

This replacement water or remedy will be available to replace Injurious Stream Depletions as directed by the Division Engineer. A summary of the portfolio items is shown in the Replacement Sources tables on the following pages. I will approve up to the full amount itemized in the Replacement Sources tables and stated in the following sections for use in the 2023 ARP.

Subdistrict No. 2 Replacement Sources Rio Grande (acre-feet)

	Water Right Name	Submitted in ARP	Approved in SWSP's	Remaining 4/21/2023 & Approved for 2023 ARP
SWSP	In Storage			
6182	Williams Cr Squaw Pass TM - Parker (RGWCD) Renewal SWSP approved 2/22/2023	282.5 + 120.2	282.5 + 120.2	282.5 + 120.2
6062	Williams Cr Squaw Pass TM - Parker (Subd2) Renewal SWSP approved 4/26/2023	153.2	153.2	153.2
13CW3002	SMRC – Monte Vista Canal Leased 2019 (150 shares @ 1.942 af)	110.3	256.3	110.3
13CW3002	SMRC – Monte Vista Canal Purchased from SD1 03/31/2023	1,000	n/a	1,000
6182	SLVWCD 84CW16 & 94CW62	0.83		0.83
6182	SLVWCD 03CW41	17.18		17.18
6182	SLVWCD 05CW13/07CW63	68.1		44.1
W3754 6258	Town of Del Norte- excess augmentation credits	24.4		0
9362	Pine River Weminuche – Janrich TM	79.7 + 456.8	79.7 + 456.8	79.7 + 456.8
9350	RG Ditch No 1 Lease of Historical CU	781.5		781.3
	Total In Storage	3,094.9		2,966.4
4/30/2023	CBP shortage released for 2022 ARP Year			-82.7 -9.2

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Adjusted Total In Storage				2,874
	In Season	Limit	Expected Yield	Approved for 2023 ARP
SWSP	In Season			
W3754 6258	Town of Del Norte- excess augmentation credits (SWSP submitted 3/30/2023)		150	0
	Total In Season		150	0
	On Call	Limit	Expected Yield	DWR Expected Yield
WDID	Forbearance			
2000566	Centennial - (10 yr. 2033)	No limit		
2000623	Commonwealth-Empire - (5 yr. 2028)	500		
2000627	Excelsior Ditch - (1 yr. 2024)	No limit		
2000753	Monte Vista Canal - (10 yr. 2033)	300		
2000812	Rio Grande Canal (1 yr. 2024)	650		
2000662	Rio Grande Canal- Hermanthal Ditch (1 yr. 2024)			
2001094	Rio Grande Canal- Scotch Ditch (1 yr. 2024)	No limit		
2001007	Rio Grande Canal- Bedel D (1 yr. 2024)	No limit		
2000624	Rio Grande Canal- Enterprise D (1 yr. 2024)	No limit		
2001094	Scotch Ditch (carried in Rio Grande Canal) - (2033 from Kruse, Ellithorpe)	No limit		
2000624	Enterprise D (carried in Rio Grande Canal) - (2033 from Kruse, Ellithorpe, Toews)	No limit		
2000816	Rio Grande Lariat Ditch - (10 yr. 2033)	500		
2000811	Rio Grande Piedra Valley Ditch - (5 yr. 2028)	No limit		
2000817	Rio Grande San Luis Ditch - (3 yr. 2026)	No limit		
2000631	Farmers Union Canal - (1 yr. 2024)	No limit		
	Total On Call- Irrigation Season		560	
	CBP Allocation (as of April 2023)	4,100	885	885
	Total On Call- Non-Irrigation Season		885	885

Note: Amounts highlighted in rose color do not match or could not be verified in the WD20 Reservoir Book. Please coordinate with the Water Commissioner to update ownership and location of the specific pools of water.

After Acquired Sources of Remedy (Section 2 of 11.1.3 of the ARP)

DWR recognizes the Subdistrict will continue to work to acquire additional sources of remedy and may, with approval from the Division Engineer, use those sources to remedy injury under this ARP.

Operation of the 2023 Annual Replacement Plan (Section 3 of 11.1.3 of the ARP)

The Subdistrict's replacement water will be released, including transit losses, from Rio Grande, Santa Maria or Continental Reservoirs, located in the Upper Rio Grande, at the direction of the Division 3 Division Engineer, to offset injurious stream depletions on the Rio

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Grande during the Plan Year. All Plan Year injurious stream depletions will be replaced in the time, location and amount that they occur, beginning May 1, 2023. These releases of water from storage will be performed under the provisions contained in section 37-87-103, C.R.S.

The ARP notes that Sections 37-80-120, 37-83-104, and 37-83-106, C.R.S., allow exchanges to occur between reservoirs without a decree and if recognized by the Division Engineer. Appropriate accounting between the Division Engineer's Office and Subdistrict No. 2 will occur on a regular and routine basis if these exchanges do occur. Any reservoir exchanges done in the Plan Year will be documented and reported in the 2023 Annual Report. The Division Engineer's Office will be notified in advance of any reservoir exchanges, and the exchanges must be documented and approved by the Division Engineer prior to them occurring.

The ARP provides documentation that the Subdistrict has implemented Forbearance Agreements with several major canals located on the Rio Grande, some of them for multiple year terms. At its sole discretion, the Subdistrict will exercise these agreements.

The ARP includes a resolution by the Centennial Ditch in Appendix N. The resolution allows replacement water to be carried through the Centennial ditch for delivery when the Rio Grande is dry below the Excelsior Ditch. The water will be measured and delivered directly to the Rio Grande at the point the Centennial Ditch can return water directly to the Rio Grande. That point is above any water right that may be injured while in priority. The Centennial Ditch must be adequate to efficiently deliver water around the dry stretch of river to the satisfaction of the Division Engineer prior to this being considered a viable option. The Centennial Ditch Company's water rights are senior enough to accomplish this carriage in any foreseeable situation (Priority Nos. 32 and 173).

The Response Functions did not predict stream depletions to streams other than the Rio Grande in amounts above the minimum threshold to reliably predict injury. Therefore, no replacements to any stream other than the Rio Grande will be made.

Further, the ARP indicates that at times when there is no requirement to deliver water to the Lobatos Gage to meet the requirements of the Rio Grande Compact, no water will be delivered to the lower reach of the Rio Grande for replacement of Injurious Stream Depletions to the Rio Grande Compact from the Subdistrict. The only instances where the Subdistrict is not required to replace these Stream Depletions are when there is an excess of 150,000 acre-feet of credit for Colorado or Elephant Butte Reservoir has spilled. In these instances, water passing the Lobatos Gage will not result in Compact credit to Colorado. In all other circumstances, the replacement of Injurious Stream Depletions to the Rio Grande Compact will result in credit being given to Colorado, either for the current year or for future years. DWR agrees that the Subdistrict may replace these Injurious Stream Depletions after the irrigation season or when Compact deliveries are being made.

The Rio Grande Water Conservation District Board of Directors has passed a resolution to act as a financial guarantor for Subdistrict No. 2 to assure that all Post-Plan Injurious Stream

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Depletions will be replaced or otherwise remedied if Subdistrict No. 2 were to fail or otherwise be unable to replace Post-Plan Injurious Stream Depletions.

If Subdistrict No. 2 were to fail, the individual well owners in Subdistrict No. 2 would have to obtain plans for augmentation or take other measures to comply with the Groundwater Rules. Presumably, those plans would be required to replace these Post-Plan Injurious Stream Depletions into the future. In the interim, Subdistrict No. 2 or the Rio Grande Water Conservation District will remedy those Post-Plan Injurious Stream Depletions by supplying water or through agreements of the type contemplated by Colo. Rev. Stat. § 37-92-501(4)(b)(I)(B), pursuant to which injury to water rights is remedied by means other than providing water to replace stream depletions.

Anticipated Funding for Plan Year (Section 4 of 11.1.3 of the ARP)

The Subdistrict submitted sufficient financial information to document the purchase and leases of replacement water for the 2023 Plan Year.

11.1.4 Contractual Arrangements among Water Users, Water User Associations, Water Conservancy Districts, Subdistricts, and/or the Rio Grande Water Conservation District

Lease of Historical Consumptive Use Credits - Rio Grande Ditch No 1 on the Rio Grande (Section 1 of 11.1.4 of the ARP)

Several shareholders of the Rio Grande No. 1 agreed to forego irrigation of their lands serviced by the Rio Grande No. 1 Ditch for the purpose of providing fully consumable water for use by Subdistrict No. 2 for the 2022 Irrigation Season. However, these shareholders have decided not to renew this SWSP for the 2023 year.

Forbearance Agreements (Section 2 of 11.1.4 of the ARP)

Pursuant to section 37-92-501(4)(b)(I)(B), C.R.S., the Subdistrict has reached agreement with several ditches whereby they accept that, subject to the specific provisions of the forbearance agreement, injury to their water rights resulting from the use of groundwater by ARP Wells may be remedied by means other than providing water to replace stream depletions, when they are the calling right on the Rio Grande.

The projected acre-feet of forbearance was based on an analysis of the number of days each ditch was the calling right in years of similar hydrologic conditions as those predicted in 2023. The years used for the analysis for the Rio Grande were 2015 and 2019. The average number of days each ditch was estimated to be the calling right was then multiplied by the average daily acre-feet of injurious stream depletions for each month during the Plan Year, excluding months outside the irrigation season. The expected yields listed in Table 3.1 are

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intended to be a conservative estimate of their potential yield to show the Subdistrict's ability to remedy injurious stream depletions. The estimate for the Rio Grande Canal did not include days that "Special Water" priorities were the calling rights even though all or a portion of those rights are included in forbearance agreements with the Subdistrict for the Plan Year and may be utilized at the discretion of the Subdistrict.

Closed Basin Project Production (Section 4 of 11.1.4 of the ARP)

According to the information provided in the ARP, the projected production of the Closed Basin Project delivered to the Rio Grande is 8,400 acre-feet during calendar year 2023. The allocation of the Closed Basin Project production in accordance with agreements is 60% to the Rio Grande and 40% to the Conejos River basin over the long term with provision for adjustments in the allocation during individual years. The 2023 allocation of the Closed Basin Project production will be 50% to the Rio Grande and 50% to the Conejos River.

Per a letter from the Rio Grande Water Users Association dated March 29, 2023, the Board of Directors passed a motion to specifically allocate up to 4,100 acre-feet of the Rio Grande's share of the usable yield of the Closed Basin Project to replace the stream depletions under the RGWCD Subdistricts. Similarly, the Board of Directors of the San Luis Valley Water Conservancy District agreed to the allocation as stated in their letter to the Rio Grande Water Conservation District on April 7, 2023.

A copy of each letter reporting the approval was provided in Appendix H of the ARP. The resolution from RGWCD allowing the Subdistrict to use Closed Basin Project water in the 2023 ARP was provided as a supplement to the ARP.

11.1.5 Documentation of Progress Towards Achieving and Maintaining a Sustainable Water Supply

Rule 8.4 of the Rules states that there is no Sustainable Water Supply requirement of the wells that withdraw groundwater from the alluvium of the Rio Grande within the Rio Grande Alluvium Response Area.

The letter of February 28, 2020 from the State Engineer regarding the Upper Rio Grande Model Domain notes that the "the aquifer in the area represented in the URG is an alluvial aquifer that has little to no storage capacity for use of the aquifer as a reservoir. The URG meets the presumption of Rule 8.5 and, therefore, a plan to achieve a Sustainable Water Supply for the wells within the URG will not be required as part of any Annual Replacement Plan(s)."

Water Levels, Pressure Levels, and/or Groundwater Withdrawals (Section 1 of 11.1.5 of the ARP)

Requirements of this Rule are satisfied per Rule 8.4.

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Listing of Irrigated Acres Proposed to be Temporarily or Permanently Fallowed and Associated Water Rights (Section 2 of 11.1.5 the ARP)

No listing of fallowed irrigated acres was submitted with this ARP.

Listing of Water Rights Proposed to be Temporarily or Permanently Retired and Historical Operations of Each Water Right (Section 3 of 11.1.5 the ARP)

No listing of retired water rights was submitted with this ARP.

Other Proposed Actions to be Taken as Applicable (Section 4 of 11.1.5 the ARP)

No listing of other proposed actions was submitted with this ARP

Findings:

Based on the information provided in the ARP and discussed above, I make the following findings:

1. The projected groundwater withdrawals are based upon the inventoried Subdistrict Wells, their historical pumping, and projected stream flows. The inventory of wells is consistent with the information in DWR's databases. The historical pumping associated with the Wells is based on diversion records on file with the DWR. The method implemented by the Subdistrict to project groundwater withdrawals for the ARP Wells for 2023 is consistent with historical pumping information and streamflow forecast from the Division Engineer's projection and the NRCS Forecast.
2. Overall, the Subdistrict inputs to the Response Functions produced a calculation of depletions that DWR considers conservative such that the depletions are covered and no injury will occur.
3. Projected stream depletions are calculated based on Response Functions generated from RGDSS Groundwater Model runs. The Response Functions are based on the RGDSS Model version 6P98, which was approved by the PRT. The Subdistrict used the 6P98 Response Functions in determining stream depletions for the Subdistrict. The ARP Year depletion schedule is included as an Exhibit to this letter.
4. The Upper Rio Grande Response Function was used to calculate the projected stream depletions for wells in that Response Area.
5. The comparison of CBP projected deliveries with all Subdistricts operating under 2023 ARPs indicates the CBP production, at least on an annual basis, is adequate to cover the Non-Irrigation season depletions for all the Subdistricts.
6. The ARP identifies the sources, availability, and amounts of replacement water and

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remedies that the Subdistrict will use to remedy Injurious Stream Depletions during the coming year and demonstrates the sufficiency of such water to remedy such Injurious Stream Depletions:

Rio Grande

The Subdistrict depletions on the Rio Grande are $\pm 1,111$ acre-feet during the irrigation season and ± 885 acre-feet during the non-irrigation season for a total of $\pm 1,996$ acre-feet.

- Irrigation Season: The Subdistrict has $\pm 2,874$ acre-feet in storage in Beaver, Rio Grande, Continental and Santa Maria Reservoirs and indicates a yield of ± 560 acre-feet from forbearance agreements during the 2023 irrigation season and in April 2024, totaling $\pm 3,434$ acre-feet.

The portfolio of water from storage in the 2023 ARP Year totals $\pm 2,874$ acre-feet and indicates sufficient firm water to cover Injurious Stream Depletions in the unlikely event that no forbearance is available.

- Non-Irrigation Season: The Subdistrict has 885 acre-feet of Closed Basin Project water available to pay non-irrigation season depletions.
- 7. The Rio Grande Water Conservation District Board of Directors has passed a resolution to act as a financial guarantor for Subdistrict No. 2 to assure that all Post-Plan Injurious Stream Depletions will be replaced or otherwise remedied if Subdistrict No. 2 were to fail or otherwise be unable to replace Post-Plan Injurious Stream Depletions.
- 8. Rule 8.4 of the Rules states that there is no Sustainable Water Supply requirement of the wells that withdraw groundwater from the alluvium of the Rio Grande within the Rio Grande Alluvium Response Area.
- 9. The URG meets the presumption of Rule 8.5 and, therefore, a plan to achieve a Sustainable Water Supply for the wells within the URG will not be required as part of any Annual Replacement Plan

The Subdistrict has presented sufficient evidence and engineering analysis to predict where and when Injurious Stream Depletions will occur and how they will replace those Injurious Stream Depletions to avoid injury to senior surface water rights under the following Terms and Conditions.

This ARP is hereby approved pursuant to the following Terms and Conditions:

1. This ARP shall be valid for the period of **May 1, 2023 through April 30, 2024**, unless otherwise revoked, modified, or superseded by me, a decree, or order of the court.

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2. The Subdistrict must replace or remedy the Injurious Stream Depletions resulting from Subdistrict ARP Well groundwater withdrawals.
3. Contract wells will be covered to the extent of their permitted/decreed uses.
4. Deliveries (including transit losses) of stored water made available for the replacement of Injurious Stream Depletions shall be determined by the Division Engineer pursuant to this ARP and associated decrees, policies and statutes. An MOU describing any exchange must be submitted and signed by all parties prior to operating the exchange.
5. If the limit is reached for any particular forbearance agreement, then the Subdistrict will need to remedy Injurious Stream Depletions to that particular ditch or canal with another remedy. General Forbearance Protocols for the Rio Grande River System for 2023 were prepared by the Division Engineer. A copy of the protocols is included with this letter.
6. The Division Engineer shall determine on an ongoing basis whether he can administer the operations under each forbearance agreement. If the Division Engineer cannot, then that operation shall cease.
7. The Subdistrict shall provide daily replacement water accounting (including, but not limited to diversions, depletions, replacement sources, and river calls) on a monthly basis. The accounting must be emailed to the Division Engineer (Craig.Cotten@state.co.us), the Water Commissioners (sam.riggenbach@state.co.us), the Subdistrict Coordinator (deborah.sarason@state.co.us), and the Water Accounting Operations Specialist (michelle.lanzoni@state.co.us) within 10 days after the end of the month for which the accounting applies. Accounting and reporting procedures are subject to approval and modification by the Division Engineer.
8. The Subdistrict must adhere to the terms and conditions of the SWSP(s) incorporated as part of the ARP. The use and inclusion of any new replacement water within the ARP is subject to SWSP approval or approved by the Water Division No. 3 Water Court for a change of water right. Prior to the use of any new replacement water, the State Engineer will evaluate for use as an amendment under this ARP.
9. Regarding the Subdistrict's request to aggregate depletions owed between stream reaches on the Rio Grande, as long as there is a curtailment in effect on the Rio Grande to satisfy Compact obligations and the daily curtailment amount is in excess of the daily negative depletions in Stream Reach 3, the depletions owed to all reaches may be aggregated, or summed, on a daily basis through the irrigation season. The depletion remedy can be made for the aggregate and if the release is made from reservoir, transit losses will be added. It is acceptable for depletions between stream reaches to be aggregated during the non-irrigation season. Should conditions change such that aggregation is not allowed, the Subdistrict will be notified and full depletion amounts owed must be remedied.

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10. Regarding the Subdistrict's request to aggregate depletions with other subdistricts, the Subdistrict may make requests for these types of changes formally to the Division Engineer, providing details of the request and documentation supporting the need to make a change to the approved ARP depletion schedule. The Division Engineer will consider such a request when it is made, under the protocol of DWR and in light of the conditions on the particular stream at the time and, if deemed appropriate, approve the request. The Subdistrict will not adopt any change until after approval by the Division Engineer.
11. In the event the CBP deliveries during the non-irrigation season months are not enough to remedy the total of the RGWCD Subdistricts non-irrigation season depletions, it is acceptable for the CBP deliveries during the irrigation season months be used to remedy the additional amount of non-irrigation season depletions. However, CBP deliveries may only be credited against non-irrigation season depletions that occur during the same calendar year and during the same ARP Year. In general, January through April CBP deliveries may be used to remedy January through March of the ARP Year depletions and May through December CBP deliveries may be used to remedy November and December ARP Year depletions. Should the CBP deliveries fall short as happened in the 2022 ARP Year, it will be necessary for the Subdistrict to provide enough replacement water to remedy the shortage for the non-irrigation season depletions.
12. The Subdistrict is not relying upon forbearance agreements to meet the requirements for mitigation of injurious stream depletions for this ARP Year but acquired agreements to use if desired. The Subdistrict is actively pursuing permanent replacement sources to cover depletions. In the unlikely event that the approved replacement sources do not yield the amounts needed to cover depletions as expected during the 2023 ARP Year, the Subdistrict will invoke its "After Acquired Sources of Remedy" clause in the ARP and will acquire sufficient additional sources to satisfy the depletion schedule approved under this ARP. If the Subdistrict is unable to acquire sufficient additional sources, the Subdistrict will not be able to continue operation under this ARP.
13. All deliveries of replacement water shall be measured in a manner acceptable to the Division Engineer. The Subdistrict shall install and maintain measuring devices as required by the Division Engineer for operation of this approved ARP.
14. The Subdistrict must submit a Preliminary Water Report and a Final Review of its ARP pursuant to Rule 12.
15. The Subdistrict must replace or remedy all Injurious Stream Depletions caused by non-augmented pumping associated with Subdistrict ARP Wells.
16. The Subdistrict must comply with the Rules, the Subdistrict PWM, and this ARP.

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Approval of this ARP does not authorize any change, increase, or expanded use of any water right or permit. Any change, increase, or expansion of a water right or permit will need to comply with existing decrees and or permits, the Confined Aquifer New Use Rules, the Measurement Rules, the Rio Grande Basin Groundwater Use Rules, and may require approval of the Water Court.

The approval of this ARP is made with the understanding that if the ARP proves insufficient to remedy Injurious Stream Depletions, the State Engineer has the authority to invoke the retained jurisdiction of the Division No. 3 Water Court.

I want to thank you for your cooperation and compliance with this approved ARP and for your continued cooperation and compliance in the future. Your efforts are greatly appreciated. If you have any questions do not hesitate to contact any of my staff in Denver or Alamosa.

Sincerely,



Kevin G. Rein, P.E.
State Engineer
Director of the Division of Water Resources

Exhibits:

- A: Subdistrict No. 2 2023 ARP Response Function Table 2.6**
- B: General Forbearance Protocols for the San Luis Valley River Systems for 2023**

ec: Craig Cotten, Division Engineer
Chad Wallace, Assistant Attorney General
David W. Robbins, Hill & Robbins
Peter Ampe, Hill & Robbins
Clinton Phillips, Davis Engineering Service, Inc.
DWR electronic notification lists
Division 3 Water Court

Table 2.6
Rio Grande Alluvium and URG Response Areas Monthly Stream Depletions for Plan Year
(units of ac-ft)

Rio Grande Alluvium Response Area Total													
Stream Reach	2022								2023				Total
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rio Grande Del Norte-Excelsior	131.5	124.8	127.7	128.4	124.3	134.3	137.0	144.1	141.4	126.4	126.5	117.3	1,563.5
Rio Grande Excelsior-Chicago	48.4	40.9	36.8	24.8	27.4	34.7	40.4	47.5	48.1	45.7	52.2	44.9	491.8
Rio Grande Chicago-State Line	6.9	-1.1	-7.1	-18.8	-12.3	-7.7	-4.9	-1.4	-4.9	-3.5	0.1	-3.6	-58.5
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	186.8	164.7	157.4	134.4	139.3	161.3	172.5	190.2	184.6	168.5	178.8	158.5	1,996.9

General Forbearance Protocols For San Luis Valley River Systems

Subdistricts No. 1, No. 2 (Rio Grande Alluvium), No. 3 (Conejos), No. 4 (San Luis Creek), No. 5 (Saguache), No. 6 (Alamosa La Jara), and Trinchera Subdistrict will be operating under ARPs and will replace depletions to their affected streams on May 1st, the beginning of the 2023 ARP year. Along with the replacement of stream depletions, the State and Division Engineer may allow the owners of the calling ditch to forbear, or choose to not take the water that otherwise would have been allocated to that ditch in exchange for receiving payment in some other form. This forbearance is authorized under Colorado Revised Statute 37-92-501 (4)(b)(1)(B), which states that the State Engineer shall “Recognize contractual arrangements among water users, water user associations, water conservancy districts, ground water management subdistricts, and the Rio Grande Water Conservation District, pursuant to which... injury to senior surface water rights resulting from the use of underground water is remedied by means other than providing water to replace stream depletions.”

In order to assist the Subdistricts, water users, and Water Commissioners in determining whether a forbearance contract will be allowed, the following are general guidelines regarding those forbearance contracts for the 2023 ARP year:

- A water right must be the calling water right in order to forbear. In other words, the ditch must be legally and physically entitled and able to receive and divert all or a portion of the replacement water that would have been placed into the river or stream reach, and the ditch owner(s) could have decided to take the replacement water available instead of forbearing.
- The owner(s) of a ditch that cannot physically divert all of the water under its priorities due to an inadequate ditch size or other physical restrictions cannot forbear for the amount that the ditch is not able to divert. However, this ditch may be able to forbear in the amount that it is physically and legally able to divert.
- The owner(s) of a ditch that physically is not able to divert the replacement water entitled to it at certain times of the year (for instance during low flow periods), due to an inadequate diversion dam or headgate, or other reasons, cannot forbear during that time of year unless and until the ditch or associated structures are repaired and are physically able to take water.
- If it is certain that the owner(s) of a ditch would have declined to take water in their ditch on a given day that they were in priority to take water, for instance, if that owner cannot take their full priority due to a break in the ditch bank, or if the owner has not called for that water right in the ditch, etc., the ditch owner cannot forbear for that water right on that day.
- Forbearance will be allowed on water rights that are not large enough to cover the entire daily replacement amount. A ditch may be forbearing only a portion of the total daily replacement amount due to the size of the water right. In such cases, there may be several water rights in various ditches that are forbearing at the same time in order to meet the entire replacement obligation of the Subdistrict.

- A ditch may operate under a partial forbearance contract with the understanding that the ditch company, Subdistrict, or other appropriate party will manage the partial flow and partial forbearance throughout the ditch system to the satisfaction of all water rights owners in that priority. Prior to operation, the manager of the ditch with partial forbearance must inform the Water Commissioner how they will operate the ditch in order to be in compliance. Without this communication, forbearance is not allowed.
- Ditches with a forbearance contract must have accurate, reliable, and operational measurement devices and headgates on the ditch.
- On a day when water could be placed into the river system for replacement of injurious depletions, and a section(s) of the stream is dry between the replacement source and the calling priority ditch(es), forbearance by that ditch(es) will not be allowed unless the stream was live at the time the forbearance began. During times of dry stretch(es) on the river system, each live stretch will be treated as its own calling system. Only the stretch(es) that includes an RGDSS modelled stream reach, and its connected tributaries will have the ditch(es) eligible for forbearance. If replacement water delivery could not make it physically to a calling ditch in any particular RGDSS reach, then no forbearance is allowed and water delivery will be required at the top of the reach. The determination of the physical properties controlling these situations shall be at the sole discretion of the Water Commissioner and/or Division Engineer.
- A forbearance that results in a section of the river drying up cannot be used to create a futile call. The river must be administered to replicate what conditions would have taken place had a continuous deliverance of water occurred.