COLORADO
Division of Water Resources
Department of Natural Resources

Cleave Simpson, General Manager
Rio Grande Water Conservation District
8805 Independence Way
Alamosa, CO 81101

RE: 2020 ANNUAL REPLACEMENT PLAN APPROVAL: SPECIAL IMPROVEMENT SUBDISTRICT NO. 1 OF THE RIO GRANDE WATER CONSERVATION DISTRICT

Dear Mr. Simpson:

Thank you for your April 15, 2020 submission of the Special Improvement District No. 1's proposed Annual Replacement Plan (ARP) for the 2020 Plan Year (**May 1, 2020 through April 30, 2021**).

My staff and I have reviewed the proposed ARP and its appendices. A number of the referenced documents will not be attached to this letter but are available on the DWR website at:

http://water.state.co.us/DivisionsOffices/Div3RioGrandeRiverBasin/Pages/Subdistrict1ARP.aspx

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

Enclosed, please find my approval of the 2020 ARP.

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

cc: Division 3

Review, Findings, and Approval of Subdistrict No. 1's 2020 Annual Replacement Plan

Background

Special Improvement District No. 1 ("Subdistrict"), a political subdistrict of the Rio Grande Water Conservation District ("RGWCD"), timely submitted its proposed Annual Replacement Plan ("ARP") pursuant to its Second Amended Plan as amended on June 6, 2017 and approved by the State Engineer on October 16, 2017 ("Second Amended PWM"), which revised the Amended Plan of Water Management ("Amended PWM") decreed by the Division No. 3 Water Court in Case Nos. 2006CV64 and 2007CW52[1] ("May 2010 Decree") and upheld by the Colorado Supreme Court in Case No. 10SA224.[2]

The 2020 Plan Year ARP and its appendices were available for download through a link on the RGWCD website. The ARP, its appendices, and resolutions were filed with the Court and to the State and Division Engineers on April 15, 2020. 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 are posted on DWR's website. In the past I have considered all letters, comments, and other objections submitted regarding the adequacy of the ARP. There were no letters, comments, or other objections submitted regarding the 2020 ARP. My staff and I have conducted this review of the ARP and comments thereon in accordance with the operational timelines specified in the May 2010 Decree and contained in Appendix 5 of the Second Amended PWM.

DWR Review

As set forth in the May 2010 Decree, I must determine whether the ARP presents "sufficient evidence and engineering analysis to predict where and when Injurious Stream Depletions will occur and how the Subdistrict will replace those Injurious Stream Depletions to avoid injury to senior surface water rights" (May 27, 2010 Decree, Term and Condition #2). Also, "[t]he Annual Replacement Plan …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 Stream Depletions" (May 2010 Decree, Term and Condition 6). Finally, I must review the ARP pursuant to the statutory mandates, constitutional requirements, Rules and Regulations[3]

[1] *In the matter of the Rio Grande Water Conservation District*, Findings of Fact, Conclusions of Law, Judgment and Decree, Case Nos. 06CV64 and 07CW52, District Court, Water Division No. 3, Colorado (May 27, 2010).

[2] *San Antonio, Los Pinos and Conejos River Acequia Preservation Ass'n v. Special Improvement Dist. No. 1 of Rio Grande Water Conservation Dist.*, 270 P.3d 927 (Colo. 2011).

[3] *The 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, Case 2015CW3024, ("Rules") were approved as promulgated in the March 15, 2019 ruling of the Division No. 3 Water Court*.

adopted in Division No. 3, and any letters, comments, or other objections submitted by water users regarding the adequacy of the ARP. As noted above no letters, comments, or other objections to the 2020 ARP were received.

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 and its supplements by reference.

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 on April 20, 2020 as a supplement to the 2020 ARP. Appendix A lists 3,481 wells, but WDID 2011199 initially excluded in error was re-added to the Appendix A, making the total 3,482 wells. Twenty-six wells were removed from the 2019 list because their water rights were abandoned through the Division of Water Resources 2010 decennial abandonment process (Water Court Case 2011CW0021).

The Subdistrict accepted contracts from 74 wells in 2020, as shown in Appendix P. Six of these wells already existed on previous ARP well lists. After review of the terms of the contracts, associated permits and decrees for each well, and historical meter records, DWR finds that the uses of six of the contract wells cannot be covered by the 2020 ARP. These wells are not used within the permitted and/or decreed beneficial uses authorized for those structures. One well has been listed as a Subdistrict Well since 2012, but submitted a contract for a use that does not have a valid decree/permit for the contracted use. Another well submitted a contract for some uses that do have a valid decree/permit for the contracted use and for some uses that do not. These wells are covered by the ARP only for their decreed uses.

Review of contract wells also indicate that a number of the contract wells have exceeded their decreed or permitted limits. Those wells will be accepted as contract wells for this ARP approval only for ground water withdrawals up to and within their respective limits.

As noted in past ARP's DWR cannot approve expanded or unpermitted/undecreed uses in an ARP and the PWM (2.5.1) cannot authorize expanded uses. Owners of these wells will be notified of the issues noted above by separate correspondence. A list of the contract wells with these notes is included with this letter. A spreadsheet will be provided to the Subdistrict. The final total of Subdistrict Wells for which the the 2020 ARP can provide coverage is 3,476.

Great Sand Dunes National Park Service Contract

The Subdistrict submitted an addendum to the 2020 ARP 4/27/2020, "Appendix O, Updated", describing a contract made with the Great Sand Dunes National Park Service (NPS). The NPS wells (WDIDs 3505620, 3505052, 3505053) are in addition to the contract wells discussed in the previous paragraph. These wells lie outside the Subdistrict No. 1 Response Area, but inside the RGDSS Model Domain in an area for which no RGDSS Response Function was developed. Therefore, under Rule 7.5, the NPS provided a Glover analysis as an alternative to determine stream depletions due to NPS groundwater use. NPS provided an engineering analysis to the Subdistrict March 31, 2020 describing the time, location, and amount of depletions caused by groundwater withdrawals from the NPS wells. A copy of the engineering report was provided by the Subdistrict. The wells serve the park visitor center, residential housing, administrative area, maintenance shop, horse barn, picnic area, and Dunes parking lot.

The engineering report was reviewed by DWR and the proposed alternative method was determined to be an acceptable and reliable method of estimating stream depletions caused by NPS wells for purposes of the Subdistrict 2020 ARP. The Subdistrict also supplied a letter April 30, 2020 describing the operation of the NPS wells, replacement obligations, and establishment of a sustainability metric under the Subdistrict No. 1 2020 ARP as required by DWR's Rules and Regulations[3]. The pumping, depletion, and forbearance tables are included with this approval letter.

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

The database of wells the Subdistrict 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 Database of Subdistrict Wells includes some wells that are part of an augmentation plan. The augmentation plans vary in their conditions, but generally they coordinate surface rights and other wells in administration of their respective augmentation plan. They are included in the list for fee determination. If any portion of their pumping is not covered by their individual augmentation plans, it is subject to the Subdistrict fees and the Subdistrict will replace Injurious Stream Depletions due to that pumping as part of this ARP. Some wells in this list had independent water rights prior to becoming involved in an augmentation plan. The Second Amended PWM does not allow expansion of "any existing beneficial use or allow a water right to be used for a beneficial use not contained in a valid Decree or Permit." (Second Amended PWM at 2.5.1)

Paragraphs 7 and 8 on page 43 of the April 10, 2013 Decree[4] clarified that the Subdistrict is required to include a list of Augmentation Plan Wells including both those wells that are listed as Subdistrict Wells but that have augmentation plans associated with them as well as

[4] *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,* Findings of Fact, Conclusions of Law, Judgment and Decree, Case Nos. 06CV64 and 07CW52, District Court, Water Division No. 3, Colorado (April 10, 2013).

those wells located within the Subdistrict Territory that have augmentation plans and that will operate independently of the Subdistrict. This list of Augmentation Plan Wells must include the well WDID number, the structure name, the owner's name, the augmentation plan decree case number, an explanation of the augmentation plan and an explanation of the way the Subdistrict treated the Augmentation Plan Wells. The Subdistrict must also include a map with the locations of both types of Augmentation Plan Wells indicated on the map and hyperlinks to the court decrees for each court-decreed augmentation plan.

Appendix B of the ARP contains the list of augmentation wells, a map of the fields associated with those augmentation plans, as well as a description of the details regarding each augmentation well.

82CW0017 SRS Augmentation Plan

The Subdistrict submitted an addendum to the 2020 ARP 4/27/2020 stating:

1) The Plan of Augmentation decreed in 82CW0017 known as the SRS Augmentation Plan will not be in operation during 2020. The wells associated with the Plan of Augmentation are 2008188, 2008189, 2008190, 2008191 and 2008192.
2) All the wells associated with the 82CW0017 decree will operate as Subdistrict No. 1 Wells as part of the 2020 ARP. Subdistrict No. 1 will remedy injurious stream depletions caused by all the groundwater withdrawals from these wells and meet requirements for aquifer sustainability in compliance with the rules and regulations for Water Division No. 3 promulgated by the Colorado State Engineer and the Plan Of Water Management.

I have reviewed Appendix A and Appendix B of the ARP and consulted with staff and, after adjusting the list for wells whose contracts were denied, find it to be an accurate inventory of Subdistrict Wells and augmented wells that meets the requirements of the May 2010 and April 2013 Decrees.

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

As a first step in predicting where and when stream depletions will occur, the ARP calculates the amount of projected pumping. The metered pumping for Subdistrict Wells, which is based upon official DWR diversion records within HydroBase, have been reported for eight of the past nine years as shown below. The figures in Table 2.4 in the ARP do not match the same tables in the Response Function spreadsheet that was provided as a supplement. It is assumed the spreadsheet contains the correct figures and those are copied into the table below.

Subdistrict Well Metered Sprinkler Pumping (acre-feet)
from Table 2.4 of the Response Function provided

2011	2012	2013	2014	2015	2016	2017	2018	2019
328,365	260,434	229,981	237,343	206,342	236,978	236,314	262,254	212,660

Based on projected Subdistrict operations, weather predictions and antecedent conditions, the ARP anticipates that 2020 well pumping by sprinkler will be 230,000 acre-feet.

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)

Each irrigation season, the RGWCD conducts a field survey of the irrigated acreage on the Valley floor within the RGWCD boundaries to record crop types grown by field. Table 3.1 is the summary of "irrigated acres, cropping patterns and irrigation methods" on parcels that are part of this ARP's Subdistrict Farm Units. The data was derived from the irrigated agriculture field survey by spatially "capturing" any fields that lie within any of the landowner parcels that are part of the Farm Units.

Table 3.1 of the ARP shows that the Subdistrict categorized ±166,966 acres in 2019. Of this total, ±153,653 acres were irrigated and ±13,312 acres were fallowed or in CREP programs. It is noted that "Potatoes", "Grain", and "Alfalfa" are the highest acreage categories, followed by "Cover Crop" with ±17,670 acres.

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

Appendix P of the ARP describes the Consumptive Use percentage for each of the contract wells in the list. The historical pumping for the wells that are not irrigation wells is included in Table 2.4 as "Other Pumping". The Response Function spreadsheet provided with the ARP indicates the weighted average Consumptive Use percentage of the "Other" wells is 91%. The projected pumping for 2020 is 2,801 acre-feet, the average of the pumping from 2011 through 2019.

Great Sand Dunes National Park Service Contract

The engineering report provided by NPS included an addendum showing historical pumping from 2011 through 2019.

NPS Well Metered Pumping (acre-feet)

2011	2012	2013	2014	2015	2016	2017	2018	2019*
9.95	10.48	9.74	10.5	10.79	16.36	7.28	5.60	12.94

*preliminary diversion records report

NPS estimated the projected pumping for 2020 to be the same as 2019, 12.94 acre-ft. The Consumptive Use percentage is 10%

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)

Farm Unit Data (Sub-Section a)

Information collected for the Subdistrict Farm Units included identification of the wells and surface rights allocated to the irrigated fields on the lands comprising each Farm Unit. A summary of the ditches and pro rata shares of surface water allocated to fields in this ARP's Farm Units is included in Appendix E. This represents the "surface water source" for Subdistrict No. 1. The groundwater source is represented by the database of Subdistrict Wells described in Section 11.1.1, above, and found in Appendix A.

Total Diversion by Ditch (Sub-Section b)

In accordance with Paragraph 2.D of Appendix 1 of the Second Amended PWM, Table 3.2 of the ARP shows diversions to the ditch service areas in the Subdistrict. The diversions shown are from the DWR's preliminary 2019 diversion records and represent the total irrigation water for the ditches for the 2019 irrigation season, but only a portion of the water for some ditches is delivered within the Subdistrict.

Ditches and Pro Rata Shares (Sub-Section c)

The pro rata surface water allocated to the Subdistrict Farm Units is shown in Appendix E of the ARP.

Surface Water Credit (Sub-Section d)

The amount of Surface Water Credit exchanged between farm units for the 2019 fees was 18,849.56 acre-feet. The ARP notes that the surface water exchanged for 2020 is not available until May and therefore was not included in the ARP.

Hydraulic Divide Study (Sub-Section e)

The Second Amended PWM clarifies that the Subdistrict will continue its efforts to restore and maintain the historical Hydraulic Divide, in order to reduce stream depletions to the river from well pumping within the Subdistrict. The Hydraulic Divide is a shallow groundwater divide that separates the Closed Basin in the San Luis Valley from the remainder of the Rio Grande Basin. The Hydraulic Divide is found to the north of the Rio Grande in the area generally from Del Norte to Alamosa. Recent water level measurements in wells along the north side of the Rio Grande indicate that the Hydraulic Divide has retreated south to the Rio Grande or very near the river.

Davis Engineering Service, Inc. prepared a report entitled "Engineering Report on San Luis Valley Groundwater Level Study" from data initially collected in the spring of 2007 which described both the historical evidence of the Hydraulic Divide and the current location and condition of the divide. The study wells have continued to be measured annually to add to the study. Maps displaying the interpreted location of the Hydraulic Divide prepared from the 2019 ground water measurements are included in Appendix K of the ARP. The Subdistrict submitted an addendum to the 2020 ARP 4/27/2020, "Appendix K, Revised", showing maps of interpreted groundwater contours prepared from the 2020 groundwater measurements. The addendum was filed in court and on the Subdistrict's website.

Other (Sub-Section f)

The following supplemental information needed to evaluate the 2020 ARP was provided as a supplement to the ARP:

1. Resolution from RGWCD approving the Subdistrict 2020 ARP.
2. Response Function spreadsheet supporting the calculations submitted in the ARP.
3. The list of Subdistrict Wells included in the 2020 ARP in spreadsheet format matching the list presented in Appendix A
4. Resolution from RGWCD to allow the Subdistrict to allocate Closed Basin Project water in the 2020 ARP.
5. Copies of the new CREP contracts made since the 2019 ARP.

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

For the purpose of this ARP, the RGDSS Groundwater Model (version 6P98) has been the basis for the Response Functions used in calculating the stream depletions caused by the Subdistrict Wells' groundwater withdrawals. The Response Function spreadsheet contains outputs of total depletions for the Plan Year and a breakdown of monthly depletions for three reaches of the Rio Grande.

The April through September streamflow forecasts included in the ARP are made by the United States Department of Agriculture's Natural Resources Conservation Service ("NRCS") (Appendix C of the ARP). The annual streamflow forecasts included in the ARP for the Rio Grande and Conejos River basins are those included in the April 6, 2020 Division Engineer's Rio Grande Compact Ten Day Report (Appendix C of the ARP).

2020 Stream Flow Forecast – Rio Grande (Section 1 of 11.1.2 of the ARP)

The Subdistrict reviewed the NRCS forecast (projected 50% exceedance streamflow at the Rio Grande near Del Norte gaging station for the period April-September) and data collected from the Division Engineer's Rio Grande Compact Ten Day Report. The information was used to determine the annual estimated stream flow on the Rio Grande for use in the Response Functions. The Subdistrict selected the Divisions Engineer's forecast to estimate an annual flow for the Rio Grande of 550,000 acre-feet for 2020.

Rio Grande Stream Flow Forecast

Analysis	Apr-Sep Forecast (acre-feet)	% of avg	Estimated Additional (acre-feet)	Annual Estimated Flow (acre-feet)
	(1)		(2)	
NRCS, 4/6/2019	355,000	69%	96,000	451,000
Division Engineer, Ten Day, 4/6/2020	454,000	88%	96,000	550,000

(1) projected 50% exceedance streamflow at the Rio Grande near Del Norte gaging station
(2) January through March and October through December

2020 Stream Flow Forecast – Conejos River (Section 2 of 11.1.2 of the ARP)

The Subdistrict reviewed the NRCS forecast (projected 50% exceedance streamflow at the Conejos River near Mogote, Los Pinos River near Ortiz, and San Antonio River at Ortiz gaging stations for the period April-September) and data collected from the Division Engineer's Rio Grande Compact Ten Day Report. The information was used to determine the annual estimated stream flow on the Conejos. The NRCS and the Divisions Engineer's forecasts were the same. The Subdistrict estimates the annual flow for the Conejos of 240,000 acre-feet for 2020.

Conejos Stream Flow Forecast

Analysis	Apr-Sep Forecast (acre-feet)	% of avg	Estimated Additional (acre-feet)	Annual Estimated Flow (acre-feet)
	(1)		(2)	
NRCS, 4/6/2020				
Conejos River near Mogote	125,000	64%		
Los Pinos River near Ortiz	38,000	52%		
San Antonio River at Ortiz	6,700	43%		
Division Engineer, Ten Day, 4/6/2020				
Conejos River near Mogote	149,900	77%		
Los Pinos River near Ortiz	53,700	74%		
San Antonio River at Ortiz	8,300	53%		
TOTAL	211,900		28,100	240,000

(1) projected 50% exceedance streamflow at the gaging station
(2) January through March and October through December

Projected Annual Recharge Credit (Section 3 of 11.1.2 of the ARP)

The ARP next indicates projected recharge credit as an offset to projected pumping. Major ditches that bring surface water into the Subdistrict have recharge decrees, as detailed in the ARP.

Paragraph 3.C of Appendix 1 of the Second Amended PWM requires that recharge credit be based upon anticipated hydrologic conditions for the 2020 ARP Plan Year using historical diversion records and the terms of the recharge decrees. The ARP developed trend lines for each canal/ditch by plotting historical annual river flows and corresponding recharge credits, in order to provide a reasonable method for predicting probable recharge credit quantities for 2020. The mathematical process used to develop the trend lines developed for each of the four canals/ditches and resulting equations describing the trend lines are included in Appendix D.

The projected recharge credits were reduced based on the pro-rata shares per ditch within the Subdistrict boundary. Further, the projected recharge credits were reduced by the projected consumption attributable to the surface water directly used through sprinkler irrigation (83%) and flood irrigation (60%), which is also outlined in Table 2.2 of the ARP.

Table 2.2
Calculated Projected Recharge Decree Credits for Subdistrict No. 1
During Current Irrigation Year
(Units in acre-feet)

	Rio Grande Canal	San Luis Valley I.D.	Prairie Ditch	SLV Canal	Totals
Total Consumable	108,431.01	16,649.82	10,982.55	14,925.00	150,988.39
% Within Subdistrict No. 1	91.68%	100%	99.20%	78.82%	
Total Consumable Within Subdistrict No. 1	99,409.55	16,649.82	10,894.69	11,763.89	138,717.95
Surface Water Through Sprinklers @83%	-3,987.33	-183.40	-591.69	-1,029.52	-5,791.94
Surface Water Used for Flood @60%	-69.90	0	0	0	-69.90
Totals	**95,352.32**	**16,466.42**	**10,303.00**	**10,734.37**	**132,856.11**

Projected recharge decree credits for the Subdistrict for 2020 are calculated as 132,856.11 acre-feet.

Projected Plan Year Stream Depletions (Section 4 of 11.1.2 of the ARP)

Subdistrict staff was instructed by the State Engineer's Office to utilize the Response Functions developed under RGDSS Groundwater Model Phase 6P98 for predicting injurious depletions to the Rio Grande during the 2020 Plan Year. A copy of the Response Function

spreadsheet was provided to DWR on April 16, 2020 as a supplement to the 2020 ARP. The tables in the spreadsheet have been updated to include the Subdistrict's historical operations and estimated 2020 values.

The figures in Table 2.5 in the April 15 ARP do not match the same tables in the Response Function spreadsheet that was provided as a supplement on April 16. It is assumed the spreadsheet contains the correct figures and those are referenced here and in the following paragraphs of this section. For the ARP, the projected Net Groundwater Consumptive Use for the 2020 ARP Plan Year is 60,593 acre-feet.

Classification as "Wet," "Average," or "Dry" Year (Sub-Section a)

Response Functions generated from the RGDSS Groundwater Model Phase 6P98 were developed for three types of weather conditions during the ARP year. These conditions are "Wet," "Average," or "Dry", based on the amount of Net Groundwater Consumptive Use for Subdistrict wells.

The ARP Table 2.3 lists the 'wet', 'dry' and 'average' ranges associated with 6P35 of the RGDSS Groundwater Model. Table 2.4 of the ARP shows the annual net groundwater consumptive use. The projected Net Groundwater Consumptive Use is 60,593 acre-feet, or "average" based on the named criteria.

Utilizing the Response Functions, the estimated total depletions that will impact the Rio Grande during the 2020 ARP Plan Year due to both past pumping and 2020 projected pumping is -178 acre-feet as outlined in Table 2.6. The location of the stream depletions and monthly quantities are also tabulated in Table 2.6. The total post-plan lagged stream depletions are anticipated to be -2,020 acre-feet as outlined in Table 2.7. This volume includes continuing stream depletions from prior pumping as well as stream depletions due to 2020 projected pumping.

Great Sand Dunes National Park Service Contract

The engineering report provided by NPS showed the Net Groundwater Consumptive Use to be 1.29 acre-feet. This represents 100% of the depletions from the current year projected pumping and is considered to be a conservative representation.

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 2020 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 4.1 of the ARP. The Santa Maria Reservoir Company (SMRC) leases from 2017 through 2019 were removed from the ARP table in 2020. There may be some discrepancy in balances in the Reservoir between the Subdistrict, SMRC, and the Water Commissioner. These discrepancies will be resolved, but for this May 1 approval there is sufficient other remedy that those differences will not affect the ability of the Subdistrict to remedy depletions. A Memorandum of Understanding between Subdistrict No's 1, 2 and 3 was submitted with the Subdistrict No. 2 and Subdistrict No. 3 2020 ARPs. The MOU allowed for these two Subdistricts to lease up to 1,500 acre-feet of Subdistrict No. 1 SMRC water in storage during the 2020 ARP Year. In our analysis we have assumed that the 1500 acre-feet is not available to Subdistrict No.1 for this plan year. Therefore that amount has been deducted from the reservoir water available to Subdistrict No. 1 shown in the table below. A copy of the MOU is included with this letter and any such future contracts should be submitted as part of future ARPs. The amounts approved for the 2020 ARP are balances reflected in the Water District 20 Water Commissioners Reservoir Book.

This water or remedy will be available to replace Injurious Stream Depletions as directed by the Division Engineer. I will approve up to the full amount stated in the following sections, less any water used at the end of the 2019 Plan Year not reflected in these totals since the numbers were prepared and submitted with the 2020 ARP prior to the end of the 2019 ARP year. A summary of the portfolio items is shown in the table below.

Subdistrict No. 1 Replacement Water
Reservoir Storage Sources (acre-feet)
The amounts submitted in the 2020 ARP were not updated from the 2019 ARP

	In Storage – Water Right Name	Submitted in 2020 ARP	[2] Approved in SWSP's	SWSP	Remaining 4/1/2020 & Approved for 2020 ARP
	Williams Creek Squaw Pass (Navajo Devel.) [1]	122.7	2,584.8	5346	117.5
	Williams Creek Squaw Pass (Farmers Union) [1]	56.49	56.49	5346,5506	
	Tabor Ditch No. 2 & Enlargement (SLVID) [1]	5.2	105.3	5346,5506	
	Tabor Ditch No. 2 & Enlargement (CPW) [1]	0	272.5	5346,5506	
	Pine River Weminuche Pass (SLVWCD)	1,000.0	500+500	5346,5506	1000.0
	Treasure Pass TM Diversion (Underwood/Cook)	730.76	432.3+ 298.5	5346,5506	730.7
	Treasure Pass TM Diversion (Klecker Ranch)	100.0	100	5346,5506	100
	Piedra River, TM, Piedra Water Rights (CPW)	500.0	500	5346,5506	500.0
	Total Transbasin	**2,515**	**5,398**		**2,448**
	Santa Maria Reservoir Co Leases				
	2012 - 1279.8 shares @ 0.944 af/share	1,252.11	3,089		

	2013 - 3235.8 shares @ 0.72 af/share	2,328.8	2,329		
	2014 - 3320.8 shares @ 1.288 af/share	4,278.2	4,278		
	2015 - 3095.8 shares @ 1.86 af/share	5,758.2	5,758.2		
	2016 - 1645.0 shares @ 0.968 af/share	1,792.36	1,592.36		
	2017 - 835.0 shares @ 1.084 af/share		905.14		
	2018 - 210.0 shares @ 0.618 af/share		129.78		
	2019 - 180.0 shares @ 0.511 af/share		91.98		
	Total SMRC	**16,337**			**13,156**
	2020 MOU with Subdistricts 2 & 3				**-1,500**
	In Storage – Total Water Available	**18,852**			**14,104**

[1] Several Transbasin replacement supplies included in previous ARPs were completely consumed during the 2018 Plan Year. They are listed in the above table for tracking purposes.

[2] Amounts shown are full amounts that were approved in SWSPs.

Subdistrict No. 1 Replacement Water
Forbearance & Closed Basin Project Agreements (acre-feet)

	On Call – Irrigation Season Forbearance Agreements	Contract	Expected Yield	Source of Diversion	Special Contract Conditions
	Rio Grande Canal	2,000	500	Rio Grande	
	San Luis Valley Canal	400	30.01	Rio Grande	
	Commonwealth	500	139.54	Rio Grande	
	Centennial Ditch	No ac-ft limit	0	Rio Grande	
	Excelsior Ditch	1,000	1.5	Rio Grande	
	RG Lariat Ditch	500	18	Rio Grande	
	Total Forbearance	**4,400**			
	On Call – Irrigation Season Total Water Available		**689**		
	On Call – Non- Irrigation Season	Contract	Expected Yield	Source of Diversion	Current Location
	CBP Allocation 3/28/2020	581	308	RGWCD	Closed Basin Project
	On Call – Non-Irrigation Season Total Water Available		**308**		

Great Sand Dunes National Park Service Contract

NPS has acquired forbearance agreements with The Nature Conservancy, Great Sand Dunes National Park, Colorado Division of Parks & Wildlife (San Luis Lakes), and Rio Grande Water Conservation District for the 2020 ARP Year. The agreements represent all affected water

rights holders on Medano Creek. It is expected all depletions to Medano Creek during the 2020 ARP Year will be remedied through these forbearance agreements.

Operation of the 2020 Annual Replacement Plan (Section 2 of 11.1.3 of the ARP)

Subdistrict water that is currently in storage will be released from Continental or other Reservoirs in the upper Rio Grande at the direction of the Division No. 3 Division Engineer, in time and amounts required to offset Injurious Stream Depletions as shown in Table 2.6 of the ARP. All 2020 Plan Year Injurious Stream Depletions will be replaced or remedied in the time, location and amount that they occur, beginning May 1, 2020. These releases of water will be performed under the provisions of section 37-87-103, C.R.S. In addition, the ARP states that since the most current RGDSS Groundwater Model (6P98) does not predict depletions by Subdistrict Wells to streams other than the Rio Grande, the Subdistrict will not make replacements to any stream other than the Rio Grande.

The ARP mentions the Subdistrict may make a request to the Division Engineer to release replacement sources currently held in reservoirs to the unconfined aquifer for temporary storage. The Subdistrict may submit an application for an SWSP describing details and justification of how the Subdistrict anticipates this type of operation. The SWSP would then be reviewed for potential approval and implementation.

The Monthly Net Stream Depletions shown in Table 2.6 of the ARP indicate there will be negative depletions owed in Stream Reach #1 and Stream Reach #3 of the Rio Grande during the 2020 irrigation season. The ARP mentions the Subdistrict plans to make potential requests for aggregation of depletions between Stream Reaches as part of the anticipated operation in 2020. The ARP also mentions the Subdistrict may request to aggregate depletions with other Subdistricts during the 2020 ARP year. 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. 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.

The ARP notes that sections 37-80-120, 37-83-104, and 37-83-106, C.R.S. allow for exchanges to occur between reservoirs without a decreed exchange right, if recognized by the Division Engineer. The ARP states that appropriate accounting between the Division Engineer's Office and the Subdistrict will occur on a regular and routine basis as these exchanges occur and that they will be documented and reported in the 2020 Annual Report. The Division Engineer's Office will be notified in advance of these exchanges.

The ARP provides documentation that the Subdistrict has renewed forbearance agreements for the 2020 Plan Year with six canals located on the main stem of the Rio Grande with whom they had agreements during previous Plan Years.

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).

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 ARP indicates that the Closed Basin Project may continue to deliver salvaged water to the stream as directed by the CBP Operating Committee or other laws or policies.

In the alternative, the DWR agrees that the Subdistrict may replace these Injurious Stream Depletions after the irrigation season or when Compact deliveries are being made. 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.

The ARP notes that the Subdistrict has acquired multiple years' worth of depletion replacement water that is currently in storage and available for release. That volume exceeds the amount needed to cover the current and total calculated post-plan stream depletions to the Rio Grande. If Subdistrict No. 1 were to fail, the individual well owners of the former Subdistrict No. 1 would have to obtain plans for augmentation or take other measures to comply with present or future rules and regulations governing groundwater withdrawals. Presumably, those plans would be required to replace these post-plan depletions into the future. In the interim, Subdistrict No. 1 would provide water to remedy injurious post-plan depletions.

Therefore, the Subdistrict does not believe that a financial guarantee agreement provided by the Rio Grande Water Conservation District is necessary to assure that all post-plan depletions will be remedied if Subdistrict No. 1 were to fail or otherwise be unable to replace injurious post-plan depletions. DWR understands that if the Subdistrict otherwise ceases operations, the water in storage will remain under control of the Subdistrict and/or the RGWCD and will be available to remedy the post-plan injurious depletions under the direction of the Division Engineer.

Anticipated Funding for the Plan Year (Section 3 of 11.1.3 the ARP)

The Subdistrict submitted sufficient financial information to document the purchase and leases of replacement water for the 2020 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

Forbearance Agreements (Section 1 of 11.1.4 of the ARP)

In accordance with section 37-92-501 (4) (b) (I) (B) C.R.S., the Subdistrict has reached forbearance agreements with six entities (Appendix H of the ARP), for a total of up to 4,400 acre-feet. A summary of the amounts contracted and the expected yield are found in the table of Forbearance & Closed Basin Project sources above

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. The Subdistrict indicates they expect to yield up to 745 acre-feet from these agreements during the 2020 irrigation season. However, the portfolio of water as determined in the 2020 Plan Year ARP indicates sufficient firm water to cover Injurious Stream Depletions in the event that no forbearance is available.

Closed Basin Project Production of Calendar Year 2020 (Section 2 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 8,500 acre-feet during calendar year 2020. 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 2020 allocation of the Closed Basin Project production will be 60% to the Rio Grande and 40% to the Conejos River.

At a meeting of Rio Grande Water Users Association held on March 28, 2020, the Board of Directors passed a motion to specifically allocate 4,000 acre-feet of the Rio Grande's share of the usable yield of the Closed Basin Project to replace the stream depletions under this ARP and in conjunction with Subdistricts No. 2, No. 3 and No. 6 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 March 24, 2020. A copy of each letter reporting the approval was provided in Appendix I of the ARP. Five hundred (581) acre-feet of water is available to Subdistrict No. 1 under this ARP. The resolution from RGWCD allowing the Subdistrict to use Closed Basin Project water in the 2020 ARP was provided April 15, 2020 as supplemental information. Closed Basin Project water was

approved by the Division No. 3 Water Court in the April 2013 Decree (Page 41, Paragraphs 5 - 6).

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

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

Unconfined Aquifer Change in Storage Volumes (Sub-Section a)

Appendix J of the ARP shows a tabulation of groundwater levels measured in unconfined and confined wells both within the boundaries of Subdistrict No.1 and the study area for the Change in Unconfined Aquifer Storage – West Central San Luis Valley for the study period, as required by the Second Amended PWM. A tabulation of measured values obtained during the previous 12 months is also included.

The Second Amended PWM includes a required objective of recovering groundwater levels to the extent necessary to achieve unconfined aquifer storage levels between 200,000 and 400,000 acre-feet below the storage level that existed on January 1, 1976. This is measured by a monthly study titled "Study of the Change in Unconfined Aquifer Storage" and utilizes measured groundwater levels from RGWCD monitoring wells located throughout the study area which is approximately the same area included within the Subdistrict. Figure 6.1 of the ARP is a map showing in the study area.

The calculated monthly change in unconfined aquifer storage volumes has been provided as Figures 6.2 and 6.3 of the ARP. Based on measurements through March 10, 2020, the ARP indicates that the change in Unconfined Aquifer storage was -1,037,179 acre-feet on an accumulated month basis. As described in the ARP, the 5-year running average of the accumulated change in storage through December 1, 2019 was -1,080,972 acre-feet. The December 1, 2019 5-year running average of the accumulated change in storage value was 680,972 acre-feet below the lowest goal level.

The Second Amended PWM states that "[a]ll measurements used to gauge success in reaching Unconfined Aquifer Storage goals will be based on a five-year running average of annual storage levels derived from the average of monthly levels" (Second Amended PWM at 3.4.7). The refreshing high water year experienced in 2019 resulted in recovery of 138 209 acre-ft from the poor conditions at the end of 2018. The Subdistrict credits this gain to the snowpack and the combined efforts and awareness from producers to reach the sustainability goals through either voluntary conservation and/or participation in current incentive programs to reduce water consumption. The gains were

significant, but not enough to recover to the level recorded at the beginning of 2018.

Projections of Unconfined Aquifer Change in Storage Volumes (Sub-Section b)

It was recommended in the 2017 ARP approval letter that in future ARPs, the Subdistrict include a plan to achieve and maintain a sustainable aquifer that looks out for a period of at least 5 years and projects where the aquifer will be from those efforts. A graph was included in the 2020 ARP showing the amount of recovery needed to reach the Subdistrict's target for compliance with the sustainability metric by 2030. The recovery amount needed to reach the lower target level of -400,000 acre-ft is estimated to be 67,966 acre-ft each year.

The Board of Managers of the Subdistrict and the Subdistrict members remain keenly aware of the PWM deadlines to achieve and maintain sustainability of the unconfined aquifer and they remain committed to restoring and maintaining a sustainable unconfined aquifer. The Subdistrict does not have regulatory or police powers over groundwater withdrawals – the only tool the Subdistrict has is to incentivize reduced groundwater withdrawals and increase conservation.

The Subdistrict amended its previous PWM to allow an increase in the Water Value, and the Board of Managers immediately increased the Water Value for groundwater withdrawals in 2019. The groundwater withdrawal fee is anticipated to increase significantly in 2020 as well. This will increase revenue and allow the Subdistrict to provide additional incentives towards short and long term conservation. This amendment involved assessment of fees internal to the Subdistrict operation and did not require approval of the SEO.

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

Fallowing irrigated land is one way to attain the storage goals discussed above. The Second Amended PWM (paragraph 3.4.4) states that "up to 20,000 acres of land previously irrigated in 2000 must be withdrawn from irrigation by December 31, 2016 or a reduction in annual consumptive use of groundwater withdrawals in the amount of 40,000 acre-feet per year. In a similar manner, if the goals in Section 3.4.3.3. above are not achieved, up to 30,000 acres in total must be designated for reduction by December 31, 2018 or a reduction in annual consumptive use of groundwater withdrawals in the amount of 60,000 acre-feet per year. If the goals in Section 3.4.3.3. above are not achieved, up to 40,000 acres in total must be designated for reduction by December 31, 2021 or a reduction in annual consumptive use of groundwater withdrawals in the amount of 80,000 acre-feet per year" in order to progress toward the Unconfined Aquifer storage goal.

RGWCD Staff have been compiling irrigated acreage coverage for the calendar year 2000 by digitizing past RGWCD irrigated cropland census maps for the area within the Subdistrict's

boundary. This information will serve as a basis to determine the previously irrigated lands in the calendar year 2000 that have been fallowed as a part to the Second Amended PWM through the Conservation Reserve Enhancement Program ("CREP"), other conservation programs or the Subdistrict conservation programs.

As mentioned in the 2017 ARP approval letter, I have had my staff review the available irrigated lands coverages that are part of the RGDSS. Currently there is not an irrigated lands coverage for the year 2000, however 1998 and 2002 coverages have been created. In comparing the 1998 and 2002 coverages to the most current coverage of 2015, irrigated acreage within the political boundary of the Subdistrict has been reduced by 24,600 acres and 18,100 acres respectively.

Since 2015 the Subdistrict has contracted to fallow an additional1405 acres permanently and 3338 acres under 15 year CREP fallowing. This means 29,343 acres have been fallowed for the 2019 ARP. Further DWR understands that the Subdistrict has amended its assessments to generate funds for further incentives for reductions in consumption to meet the long-term sustainability goals of the Subdistrict. Based on these comparisons and actions, it appears that the December 31, 2018 guidelines of up to 30,000 acres or 60,000 acre-feet per year of consumptive use of groundwater withdrawals has been substantially achieved. However, it is recognized that acreage is fallowed for many different reasons in any given year and this general observation may not represent acreage taken out of production permanently.

While Subdistrict efforts have achieved a significant reduction in pumping, the reduction in pumping has not yet resulted in sustained increases in aquifer levels due to high volumes of groundwater pumping in extraordinarily dry years.

2020 Contracted Conservation Reserve Enhancement Program Lands (Sub-Section a)

Local USDA FSA field offices located in Alamosa, Rio Grande, and Saguache Counties and the Subdistrict staff implemented the Rio Grande CREP signup process beginning in May 2013 per the 2008 Farm Bill. As of April 1, 2019, the Subdistrict has finalized FSA CRP-1 Contracts for 3,004 acres in Permanent Water Retirement and 5,081.6 acres in 15 Year Water Retirement terms for a total of 8,682.6 acres reducing water consumption by approximately 17,365.2 acre-feet per year. The Annual Report for the Subdistrict 2018 ARP reports the USDA FSA found all but one existing 2014 through 2018 fiscal year CREP contracts in the Subdistrict to be in cropping and water use compliance at the end of the 2018 fiscal year, September 30, 2018. The one contract that was not in compliance with FSA requirements was revoked and is no longer participating in the program.

In 2018 the United States Congress passed a new Farm Bill that changed some of the parameters of the CREP program. Those changes, combined with the partial Federal Government shutdown in early 2019, resulted in a delay in signing up for new CREP contracts. The Subdistrict was able to take new

contracts in 2019 and 2020. A map and legal descriptions for the existing CREP parcels are included in Appendix L along with the wells and surface rights associated with the parcels. A summary of the acreage under CREP contracts is shown below. There are 3,044 acres enrolled in permanent contracts and 5,202 acres enrolled in temporary contracts. The new CREP contracts were provided in a supplement to the 2020 ARP on April 30, 2020.

2020 Subdistrict No. 1 CREP Enrollment

Rio Grande River CREP Enrollment Year	**Permanent**	**Temporary**	**Total**
2014	918.6	1,049.9	1,968.5
2015	680.4	1,290.8	1,971.2
2016	1,164.0	751.2	1,915.2
2017	0	479.7	479.7
2018	241.0	1,509.98	1,750.98
2019	0	597.02	597.02
2020	0	120	120
TOTAL	**3,044**	**5,201.6**	**8,802.6**

Temporary Land Retirement - Fallow (Sub-Section b)

The Subdistrict has reached an agreement with 11 producers to fallow approximately 3,250 acres into the temporary fallow program. There are three different increments a field can enroll in: 1 field for 4 years, 4 fields for 1 year or 2 fields for 2 years. This program is not part of the CREP contracts. The Subdistrict agreed to compensate producers, in return for no groundwater or surface water irrigation use on a parcel of irrigated land for each year the contract is in effect. A table listing the legal descriptions for these temporary fallow parcels is included in Appendix L along with the wells associated with the parcels. A summary of acres enrolled in the program is shown below.

2020 Subdistrict No.1 Fallow Enrollment

2018	2019	2020
Acres: 1,189.98	Acres: 1,813.2	Acres: 3,250

The Subdistrict offered a new conservation program for 2020. The program requires a producer to reduce groundwater withdrawals for a well by half of its historical five-year average. The Subdistrict expects this program to save ±3,190 acre-ft in 2020.

Approximately 15,127 acres of lands within the Subdistrict took advantage of Preventive Planting Insurance programs during 2019. This program may not be available at the same level for 2020.

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

Based on total head-gate diversions the Subdistrict diverted approximately 977.12 acre-feet towards recharge to the unconfined aquifer on the White, McConnell, Lacy and West Medano Ranch properties during the irrigation season. The Subdistrict did not use the wells located on these parcels for any purpose in 2019.

A map of the locations of the lands purchased by the RGWCD is included in Appendix M.

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

As noted above the Board of Managers of the Subdistrict and the Subdistrict members remain keenly aware of the PWM deadlines to achieve and maintain sustainability of the unconfined aquifer and have increased assessments to generate funds to further long-term conservation.

With an average water supply predicted for 2020, the Subdistrict is seeing a steady increase in enrollment with the conservation programs offered and hopes to see participation grow. The Subdistrict continues doing everything within its limited authority to complete its charge under the PWM.

Examples of on-going conservation measures are: informing constituents of aquifer level through a monthly email publication; public forums to provide education on sustainability, aquifer conditions and programs offered through the Subdistrict; online surveys to solicit input on conservation ideas; expanded options on fallow programs to increase enrollment; and, mailing out end of year water report by farm to raise water use awareness, with customized calculation on what a 10% cut back would look like on a field by field basis.

Great Sand Dunes National Park Service Contract

Paragraph 2.6.8 of the NPS Participation Contract states that NPS will obtain approval of the State Engineer by no later than December 31, 2020, of a Sustainability Metric for all future groundwater withdrawals that will be fully implemented by NPS by no later than December 31, 2020. This covenant is acceptable for inclusion of the NPS wells in the Subdistrict No. 1 ARP for the 2020 ARP Year.

Findings

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

1. The Subdistrict submitted an addendum to Appendix B of the 2020 ARP stating that the Plan of Augmentation decreed in 82CW0017 known as the SRS Augmentation Plan will not be in operation during 2020. The wells associated with the Plan of Augmentation are 2008188, 2008189, 2008190, 2008191 and 2008192. All the wells

associated with the 82CW0017 decree will operate as Subdistrict No. 1 Wells as part of the 2020 ARP. The addendum was filed in court and on the Subdistrict's website.

2. The Subdistrict accepted a contract from the NPS for wells that lie outside of the Subdistrict No. 1 Response Area, but within the Model Domain. The Subdistrict submitted an addendum to Appendix O of the 2020 ARP describing the engineering analysis provided by NPS to estimate depletions to streams from NPS wells. The addendum was filed in court and on the Subdistrict's website. The Subdistrict also supplied a letter describing operation of the NPS wells as contracted under the Subdistrict's 2020 ARP and plans for developing a sustainability metric by December 31, 2020.

3. The projected pumping is based upon the inventoried Subdistrict Wells, their historical pumping, and CREP fallowing. The inventory of wells, after adjustment as described above, 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 pumping for the Wells for 2020 is consistent with historical pumping information and streamflow forecast from the Division Engineer's projected hybrid of the NRCS Forecast and the National Weather Service Forecast and includes lands fallowed under CREP within the Subdistrict for 2020.

4. The Second Amended PWM requires an estimation of projected recharge using historical information. Projected annual recharge credits are based on historical recharge records and the relationship between historical streamflows and recorded historical recharge volumes. The historical recharge credit is based on diversion records on file with the DWR and is calculated pursuant to methods approved by the Water Court.

5. Projected stream depletions are calculated based on Response Functions generated from RGDSS Groundwater Model 6P98 runs.

6. It is noted that Subdistrict No. 1 has delivered sufficient replacements to streams to remedy injurious depletions for all of the past ARP Years through 2017 and in 2019. A minimal underestimation in the 2018 ARP Year was remedied prior to the start of the 2019 ARP Year as per terms of compliance with Rules 3.7, 4.13, 4.26, 5.13, 11.3, 12.1, 12.4.3; the Second Amended PWM, Appendix 1, Section 11.A; the May 2010 Decree, Sections I.A.¶8, II.A.¶36, II.C.¶74.

7. The ARP identifies the sources, availability, and amounts of replacement water and 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:

    a. Transbasin water up to 2,448 acre-feet is available for release under this ARP through SWSPs approved in prior years.

b. Santa Maria Reservoir water up to 11,656 acre-feet is available for this ARP under the agreements with the Santa Maria Reservoir Company and the decree of Case No. 2013CW3002.
c. The use of up to 4,400 acre-feet is available for forbearance by contract.
d. The use of up to 581 acre-feet of Closed Basin Project water as a replacement water supply is adequate and suitable as a source of replacement water to prevent injury to senior surface water rights per the April 2013 Decree.

8. Subdistrict No. 1 listed all Santa Maria water that is under their control as a replacement source for the Subdistrict No. 1 2019 ARP. As part of the approval process for Subdistrict No. 2 (Rio Grande Alluvium) and Subdistrict No. 3 (Conejos) of the RGWCD, it is noted that a Memorandum of Understanding was submitted committing a portion of the Santa Maria Reservoir water currently under the control of Subdistrict No. 1 as a replacement source for Subdistrict No. 2 and Subdistrict No. 3 (1,500 acre-ft total). This review notes that Subdistrict No. 1 replacement sources are adequate to pay current year and lagged depletions for Subdistrict No. 1 without including the amounts described in the Subdistrict No. 2 and Subdistrict No. 3 ARPs.

9. The past financial guarantor agreement provided by the RGWCD is not necessary if the Subdistrict were to fail or otherwise be unable to replace Injurious Stream Depletions caused by Subdistrict Wells. Water supplies noted in Table 4.1 of the 2020 ARP will be used to offset continuing Injurious Stream Depletions from this ARP should the Subdistrict fail. DWR understands that if the Subdistrict otherwise ceases operations, the water in storage will remain under control of the Subdistrict and/or the RGWCD and will be available to remedy the post-plan injurious depletions under the direction of the Division Engineer.

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, 2020 through April 30, 2021**, unless otherwise revoked, modified, or superseded by me, a decree, or order of the court.

2. This approval covers the contract wells as indicated in Attachment A.

3. The Subdistrict has accepted a contract with NPS wells outside of Response Area #1 and whose impacts are determined pursuant to Rule 7.5 by using an approved alternate method of calculating injurious stream depletions. This action is approved for this ARP year.

4. The Subdistrict must replace or remedy the Injurious Stream Depletions resulting from Subdistrict Well pumping, regardless of the state of the Hydraulic Divide.

5. 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.

6. If the limit is reached for any particular forbearance agreement, then the Subdistrict will need to begin replacement of Injurious Stream Depletions to that particular ditch or canal.

7. 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.

8. 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 Commissioner (sam.riggenbach@state.co.us), and the Subdistrict Coordinator (deborah.sarason@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.

9. 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.

10. 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.

11. The Subdistrict must submit an Annual Review pursuant to Term and Condition #17 of the May 2010 Decree. **The Annual Review will include information pertinent to the operation of the ARP in regard to the NPS contract wells.**

12. The Subdistrict must replace or remedy all Injurious Stream Depletions caused by non-augmented pumping associated with Subdistrict Wells.

13. The Subdistrict must comply with the May 2010 Decree approving its Amended PWM, the April 2013 Decree, the Second Amended PWM, the approval conditions of the Second Amended PWM, and this ARP.

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. 1 Contract Well List – Notes regarding Coverage under the Subdistrict No. 1 2020 ARP
B: Subdistrict No. 1 2020 ARP Response Function Table 2.6
C: NPS Tables
D: Memorandum of Understanding Between Subdistricts No 1, No 2 and No 3

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

Exhibit A

Subdistrict No. 1 2020 ARP
Contract Well Review

WDID	STRUCTURE NAME	USES SHOWN IN SD CONTRACT	Subd1 CU %	DWR CU%	COVERED BY ARP Y-N	DECREE USES	PERMITTED USES
Irrigation Wells							
2010218	W1128 WELL NO 01	Irrigation	83%	83%	Y	1	1
2009213	W0511 WELL NO 01	Irrigation	83%	83%	Y	1	1
2012463	W2472 WELL NO 03	Irrigation	83%	83%	Y	1	1
2012011	W2167 WELL NO 01	Irrigation	83%	83%	Y	1	1
2005732	W2371 WELL NO MCKINLEY 1	Irrigation	83%	83%	Y	1,AP	1
2005733	82CW166 WELL NO 01S	Irrigation	83%	83% (Irrig S	Y	1,AP	1,AP
2005734	82CW166 WELL NO 01SS	Irrigation	83%	83%	Y	1	1
2008226	82CW163 WELL NO 13	Irrigation	83%	83%	Y	1	1
2014273	PERMIT 42693-F-	Irrigation	83%	83%	Y	none	1,SP
2008591	W0173 WELL NO 01	Irrigation	83%	83%	Y	1	1
2014552	19CW0002 WELL NO. 1-S	Irrigation	83%		Y?	3.3 SP	pending
2014535	PERMIT NO 47945-F	Irrigation	83%	83%	Y	NONE	1
2011180	W1688 WELL NO 06	Irrigation	83%	83%	Y	1	1
2009233	W0519 WELL NO 01	Irrigation	83%	83%	Y	1	1
2008889	W0347 WELL NO 01	Irrigation	83%	83%	Y	1	1
2008890	W0347 WELL NO 02	Irrigation	83%		Y	1	1,G
2008922	W0361 WELL NO 03	Irrigation	83%	83%	Y	1	1
2705326	W3180 WELL NO 01	Irrigation	83%	83%	Y	1	1
2706243	PERMIT 24009-F	Irrigation	83%	83%	Y	NONE	1
2011008	W1596 WELL NO 02	Irrigation	83%	83%	Y	1	1
2009681	W0808 WELL NO 01	Irrigation	83%	83%	Y	1	1
"Other" Wells							
2010790	W1461 WELL NO 07	Commercial	40%	40%	Y C	3, 8	3
2013363	W3421 WELL NO 01	Potato Processing	40%	40%	Y	3	3
2013790	98CW031 WELL NO 1/2/3A	~~Irrigation, Fish, Stock~~	39%	**100%**	Y C	3, AP	3
2014169	PERMIT 45486-F	Potato Transportation	100%	100%	Y	none	3, AP
2012671	W2588 WELL NO 18	Commercial	100%	100%	Y	3	3
2706176	00CW014 WELL NO 1	Irrigation, stock,commercial	40%	100%	Y C	3,1,9	none
2013632	W3941 WELL NO 02R	Domestric, Irrigation	100%	100%	Y	1,8,9	1,8,9
2014485	10CW32 WELL NO. 2-R	Commercial, Irrigation (Lawn)	100%	100%	Y	3	3
2011336	W1793 WELL NO 08	Irrigation, Stock, Fish Culture	100%	100%	Y	1,6,9	1,6,9
2014487	10CW0009 WELL NO 1	Commercial	100%	100%	Y	3	3
2010597	W1373 WELL NO 01	Stock, Irrigation	100%	100%	Y C	1,9	
2013802	98CW017 WELL NO 4A	Commercial	100%	100%	Y	3,AP	3
2008176	81CW165 WELL NO 01	Domestic, Irrigation, Livestock	100%	100%	Y	3,4	3
2014562	18CW3004 WELL NO 01R	~~Home, garden~~	100%	100%	Y	3	pending
2010249	18CW3004 WELL NO 01RR	Domestic, Commercial	100%	100%	Y	3	pending
2705171	PERMIT 46704-F	Humidification	100%	100%	Y	none	3,APD
2705848	W1631 WELL NO 03	Irrigation, Commercial	100%	100%	Y	1,3	1,3
2014554	PERMIT 039810-F	Humidification	100%	100%	Y	none	3,AP
2706295	07CW0046 COMPOST TECHNOLO	Composting	100%	100%	y	3	3
2011719	W1965 WELL NO 09	Domestic, Irrigation	100%	100%	Y	1,8	1,8
2014495	2007CW32 WELL NO WAREHOUSE	Commercial	100%	100%	Y?	3	3
2014557	PERMIT 43790-F	~~Approximate~~	100%	100%	Y	none	3,AP

Subdistrict No. 1 2020 ARP
Contract Well Review

WDID	STRUCTURE NAME	USES SHOWN IN SD CONTRACT	Subd1 CU %	DWR CU%	COVERED BY ARP Y-N	DECREE USES	PERMITTED USES
2013867	2003CW026 WELL NO 1	Commercial, Humidification	100%	100%	Y C	3,8,9	3,8,9
2014017	PERMIT 43118-F-	Commercial, Humidification	100%	100%	Y C	NONE	3
2009826	W0889 WELL NO 05	Domestic and Commercial	100%	100%	Y	3,8	none
2012031	W2179 WELL NO 03	Irrigation, Fish Culture	See	100%	Y C	1,6	1
2008891	W0347 WELL NO 03	Domestic	38%	38%	Y	8	in-house
2014434	PERMIT 42933-F	Humidification	100%	100%	Y	none	3,AP
2706183	2000CW023 WELL NO LOIS-A	Humidification	100%	100%	Y	3	3
2014166	PERMIT 5986-F-	Industrial	100%	100%	Y	NONE	4
2010240	W1157 WELL NO 01	Commercial	100%	100%	Y	3	3
2010686	W1406 WELL NO 01	Domestic, Commercial	10%	10%	Y C	3,8	8
2014544	PERMIT 29074-F	Humidification	100%	100%	Y C	NONE	3
2014561	PERMIT 22784-F	Humidification	100%	100%	Y	NONE	3
2705323	W0950 WELL NO 02	Irrigation and Stock	100%	100%	Y	1,9	1
2705324	W0950 WELL NO 01	Irrigation and Stock	100%	100%	Y	1,9	1
2008995	W0407 WELL NO 01	Commercial and Industrial	100%	100%	Y	3,4	3
2008897	W0348 WELL NO 05	Commercial and Industrial	100%	100%	Y	1,3	1,3
2014560	PERMIT 42536-F	Humidification	100%	100%	Y	NONE	3
2013796	99CW037 WELL NO 1A	Commercial/humidification	100%	100%	Y	3	3
2014556	PERMIT# 042721-F	Warehouse	100%	100%	Y	NONE	3
2012920	W2769 WELL NO 06	Potato Humidification	100%	100%	Y	1,8	3
2014563	PERMIT 21576-F	Household & Potato Storage	100%	100%	Y C	NONE	3,H
2011386	W1808 WELL NO. 1	Domestic Commercial	100%	100%	Y	3,8	3,8
Covered for decreed/permitted uses only							
2008349	W0046 WELL NO 06	Commercial	100%		contract C	1	??
2008576	W0156 WELL NO 01	irrigation	12%	**12%**	Y C	1,5,8	1,5
2013341	W3395 WELL NO 01R	Irrigation and commercial	10%	**10%**	Y C	1,3	1,6
Not covered by 2020 ARP							
2014319	PERMIT 19986-F	Domestic , Irrigation (Lawn)	100%		N C	none	3,8
2014042	2010CW23 MOSCA HIGH SCHOOL	Irrigation	83%		N C	1	
2014307	PERMIT 17332-F	Commercial	100%		N C	NONE	1
2012418	W2445AWELL NO 03	Irrigation	83%		N?C	3,8	NONE
2008815	W0316 WELL NO 06	Domestic	100%		N? C	8	8
2706327	PERMIT 286804	Commercial	100%		N C	NONE	3

Exhibit B

Table 2.6

Response Area No.1 Monthly Net Stream Depletions for Plan Year

(units of ac-ft)

	Response Area No.1 Response Area Total												
	2020								2021				
Stream Reach	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rio Grande Del Norte-Excelsior	-114	-110	-93	-77	-70	-71	-71	-69	-61	-54	-66	-57	-913
Rio Grande Excelsior-Chicago	77	65	43	47	44	51	66	73	75	72	82	70	765
Rio Grande Chicago-State Line	7	14	-17	1	2	-5	2	4	-2	-7	-12	-17	-30
	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-30	-31	-67	-29	-24	-25	-3	8	12	11	4	-4	**-178**

Notes for columns:

(1) Stream reach

(2)-(13) Monthly Net Stream Depletions in acre-feet

(14) Total Plan Year Net Stream Depletions in acre-feet

Exhibit C

Great Sand Dunes National Park and Preserve

Table 1
National Park Service Estimated Net Groundwater Consumptive Use
(Units in acre-feet)

	National Park Service Total					Recharge that Offsets Groundwater					
Year	Irrigation Pumping to Center Pivots	Irrigation Pumping to Flood Irrigation	Other Pumping	Other Consumptive Use Ratio	Groundwater Consumption	Recharge Source 1	Recharge Source 2	Recharge Source 3	Recharge Source 4	Total	Net Groundwater Consumptive Use
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011			9.95	10%	0.995					0	1.00
2012			10.48	10%	1.048					0	1.05
2013			9.74	10%	0.974					0	0.97
2014			10.50	10%	1.050					0	1.05
2015			10.79	10%	1.079					0	1.08
2016			16.36	10%	1.636					0	1.64
2017			7.28	10%	0.728					0	0.73
2018			5.60	10%	0.560					0	0.56
2019			12.94	10%	1.294					0	1.29
2020			**12.94**	**10%**	**1.294**					**0**	**1.29**
Avg			10.66		1.07					0	1.07

Table 2
National Park Service Monthly Net Stream Depletions for Plan Year
(Units in acre-feet)

	Response Area No.1 Total												
Stream Reach	2019								2020				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)
Medano Creek	0.110	0.110	0.106	0.110	0.110	0.106	0.110	0.106	0.109	0.102	0.109	0.106	1.29
Total	**0.110**	**0.110**	**0.106**	**0.110**	**0.110**	**0.106**	**0.110**	**0.106**	**0.109**	**0.102**	**0.109**	**0.106**	**1.29**

Table 3
2020 Forbearance Agreements for GSDNP Wells

Forbearing Party	Amount
National Park Service	all
The Nature Conservancy	all
Colorado Division of Parks and Wildlife	all
Rio Grande Water Conservation District	all

Exhibit D

MEMORANDUM OF UNDERSTANDING
BETWEEN SUBDISTRICTS NO. 1, NO. 2 and NO. 3

March 2, 2020

To: Boards of Managers of Subdistrict No. 1, Subdistrict No. 2, Subdistrict No. 3 and Subdistrict No. 6.
From: Subdistrict Nos. 2, 3 and 6 Staff, through Board of Managers of Subdistrict Nos. 2, 3 and 6.
Re: Release of Subdistrict No. 1 Santa Maria water on behalf of Subdistricts No. 2, No. 3 and No. 6.

Background:
In 2011, Subdistrict No. 1 began leasing water in order to build a portfolio sufficient to replace post Annual Replacement Plan (ARP) Year injurious stream depletions based on the then current Response Functions. They acquired tens of thousands of acre-feet based on the Response Functions showing the need for that amount of water to be available to remedy post ARP Year injurious stream depletions. In 2015, the 6P98 Response Functions were released and the amount of post ARP Year injurious stream depletions calculated with the new Response Functions was an order of magnitude less than the previous version. This greatly reduced the need to hold the same volume of water in storage. Beginning in 2016, Subdistrict No. 1 began replacing injurious stream depletions solely by releasing its leased water from storage. The primary factor in this decision was to reduce storage costs.

Subdistricts No. 2 and No. 3 have now been operating under their first ARP since May of 2019. As they are just beginning to operate under a Plan of Water Management (PWM) and ARP they are currently trying to build their portfolio of water and other sources to insure that current and post ARP Year injurious stream depletions will be remedied.

Subdistrict No. 6 has just recently finalized their PWM and must be operating under an approved ARP by October 1, 2020. In order for them to operate under an ARP in 2020 they must acquire sufficient water to replace injurious stream depletions. They have acquired some water which is being stored in Rio Grande Reservoir but they are still looking for additional water to assure they can remedy all depletions under their first ARP.

Purpose and Need:
The needs of the different subdistricts are complimentary. Subdistrict No. 1 wants to reduce the volume of water it holds in storage and needs to increase the water levels in the unconfined aquifer of the Closed Basin by the year 2032. Subdistricts No. 2 and No. 3 need to acquire a sufficient water supply to remedy post ARP Year injurious stream depletions and Subdistrict No.

6 will be in need of water to cover current year and post ARP Year injurious stream depletions beginning in 2020. Subdistricts No. 2 and No. 3 did retain a portion of their water that was stored in the past year which can be used for their 2020 ARPs but they are still short in the total amount of water they will need for the 2020 replacements. Subdistrict No. 6 needs to acquire sufficient water to insure remedy of its 2020 ARP injurious depletions.

Proposed Action:

During the term of the 2020 ARPs for Subdistricts No. 1, agrees to lease_1,500 acre feet to Subdistrict No. 2, No. 3 and No. 6, (May 1, 2020 to April 30, 2021), when the calling right on the Rio Grande is a ditch or canal that primarily services Subdistrict No. 1 and recharges the unconfined aquifer of the Closed Basin, Subdistricts No. 2, No. 3 and No. 6 will pay Subdistrict No. 1 the sum of $_250_ per acre-foot to release its leased Santa Maria Reservoir Company water to replace the injurious stream depletions caused by Subdistrict No. 2, No. 3 and No. 6 groundwater withdrawals. The ditches and canals that Subdistrict No. 1 will release water for include Rio Grande Canal, Farmers Union Canal, San Luis Valley Canal, Billings Ditch, and Prairie Ditch. Staff for each Subdistrict will keep a daily accounting of the amount of water released from Subdistrict No. 1's storage for the replacement of injurious stream depletions for Subdistricts No. 2, No. 3 and No. 6. At the end of the 2020 ARP Year, subdistrict staff will reconcile their accounting and provide the final number of acre-feet released and total cost to the Boards of Managers of Subdistrict No. 1. Subdistricts No. 2, No. 3 and No.6 will pay $_250__ dollars per acre-foot of water released for the 2020 ARP no later than thirty days after receipt of the final accounting.

Outstanding Concerns:

As the irrigation season progresses staff for Subdistrict No. 1 and Subdistricts No. 2, No. 3 and No. 6 will consult with each other to track the amount of water being released pursuant to this agreement. During the quarterly meetings of each subdistrict, staff will update the Boards of Managers on the amounts of water being released under this agreement.

Staff Recommendation:

Staff recommends accepting the request and proceeding with the agreement. This one-year agreement represents on opportunity to benefit four subdistricts in multiple ways. Subdistrict No. 1 benefits from reduced storage costs, recharge to the unconfined aquifer of the Closed Basin, and monetary payments for the water released. Subdistricts No. 2 and No. 3 benefit from having 2020 ARP year injurious stream depletions being remedied and from retaining their water currently in storage, when possible, to allow them to build up a portfolio of water for future years. Subdistrict No. 6 benefits from having a supply for their first ARP. As subdistricts are formed and move forward, this is the type of planning and execution that will be necessary to assure the subdistricts succeed in remedying injurious stream depletions and meeting the other

requirements of their Plans of Water Management, court decrees, and Rules Governing the Withdrawal of Groundwater in Water Division No. 3.

Signed:

Subdistrict No. 1

By: Marisa Fricke 4/14/2020

Marisa Fricke, Program Manager Date

Subdistricts No. 2 , No .3 and No. 6

By: Amber Pacheco 4-14-2020

Amber Pacheco, Program Manager Date

Rio Grande Water Conservation District

By: CleaveSimpson 4/14/2020

Cleave Simpson, General Manager Date