

Aquifer Storage and Recovery In Rancho Viejo, Santa Fe County

WaterSMART: Drought Resiliency Project Grants For FY 2019

Funding Opportunity Announcement: BOR-DO-19-F003
March 27, 2019

Applicant:

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Technical Proposal and Evaluation Criteria

Executive Summary

Santa Fe County, in partnership with Rancho Viejo de Santa Fe, Inc. (collectively “Partners”), requests \$291,519.62 from the Bureau of Reclamation under the Funding Opportunity **BOR-DO-19-F003**. The proposed Drought Resiliency project will rehabilitate two existing wells within the Community College District of Santa Fe County to inject 240 acre feet per year of treated drinking water as part of an aquifer storage and recovery program envisioned by Santa Fe County.

There is a growing concern about extreme drought in the basin, and what might happen to the water supply should portions of the Rio Grande dry in the future. Because of this concern and a host of operational challenges at the Buckman Direct Diversion (BDD) that has forced it to close for significant periods of time, the County’s primary strategic goal for the water utility is to identify other sources of backup supply. Aquifer storage and recovery is an excellent option for the County to pursue to achieve this goal.

By utilizing low power cost timing windows and water rights owned by the County in excess of demand, the project will increase backup supplies and diversify the source of supply for the County, protecting against a time when surface water supplies are compromised or otherwise unavailable.

The project completed a demonstration phase in 2007; the partners seek funding to build the infrastructure out to full capacity. Hydrologic analysis is currently being completed in advance of a permit application to the New Mexico Office of the State Engineer. Construction is expected to begin by July 1, 2019 and end by December 31, 2019.

Background data

Existing Infrastructure

Santa Fe County Utilities (SFCU) owns, operates, and maintains a water utility system which serves approximately 3,600 customers throughout the service area. The water system consists of the following facilities:

- Approximately 115 miles of water distribution mains and transmission pipelines
- One potable water storage reservoir with a capacity of 1.5 million gallons
- One booster pumping station
- Seventeen pressure reducing valves (PRV’s)
- Seven master meters
- Approximately 2,450 fire hydrants
- Numerous isolation valves, and
- Other water system appurtenances

Santa Fe County shares ground and surface water supply sources with the City of Santa Fe. The sources of water supply for both the County and the City water systems are the same throughout the Santa Fe metropolitan and surrounding areas and include:

- Groundwater from 13 wells in the City's Buckman well field and 8 wells in the City well field
- Surface water from the Rio Grande and the Santa Fe River

Water Rights Ownership

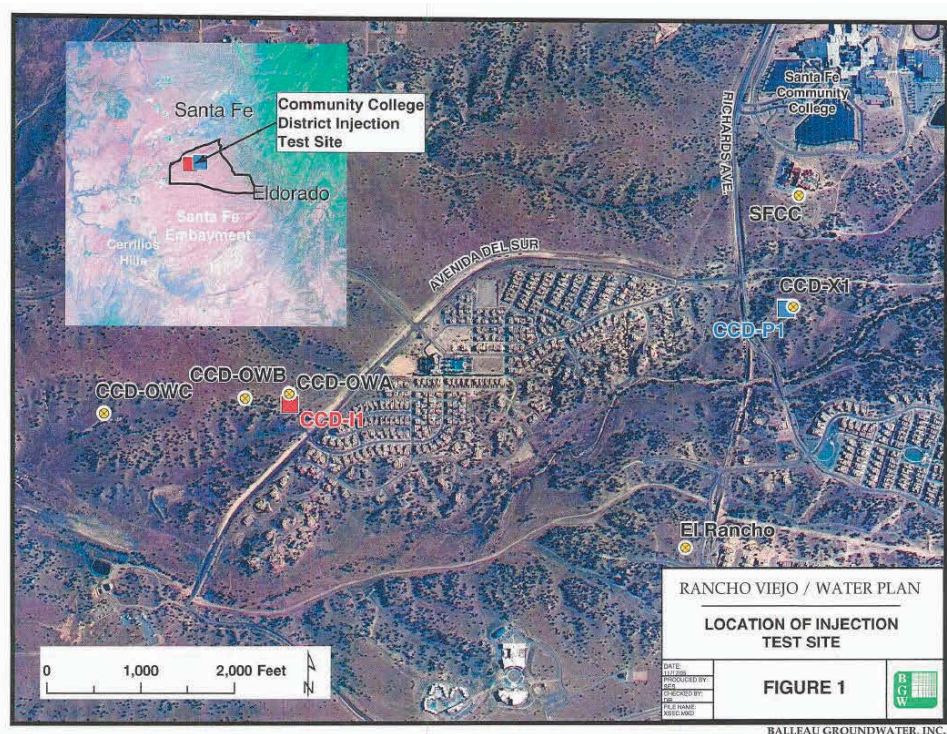
Santa Fe County currently has the capacity to divert and treat 1,700 acre-feet of water at the BDD, including 375 acre-feet of San Juan Chama Project water, through a contract with the Bureau of Reclamation.

The County currently has water rights in excess of current delivery requirements. However, native rights cannot be stored and are lost down-river if they cannot be used at the time they are available in the river. San Juan Chama Project (SJCP) water can be stored in Abiquiu Reservoir, but this involves a storage fee and evaporative losses.

Further, in a basin study conducted by the City of Santa Fe and the Bureau of Reclamation in 2015, it was projected that Santa Fe City and County water utilities would face a supply gap of at least 5,000 AFY by the year 2055, in part due to the expectations of longer and more severe drought conditions in the future. Both entities are currently evaluating how to become more efficient with current water uses.

Project Location

The project is located in the Community College Planning District of Santa Fe County, just south of the City of Santa Fe. The injection well is located at latitude 35.59538, longitude -106.017452. The production well is located at latitude 35.59796, longitude -106.000151.



Technical Project Description and Milestones

In a basin study conducted by the City of Santa Fe and the Bureau of Reclamation in 2015, it was projected that Santa Fe City and County water utilities would face a supply gap of at least 5,000 AFY by the year 2055, in part due to the expectations of longer and more severe drought conditions in the future. Both entities are currently evaluating how to become more efficient with current water uses.

The County water utility also gets the majority of its water supply from the Buckman Direct Diversion (BDD), a surface water diversion on the Rio Grande, co-owned with the City and the community of Las Campanas. The county has both native surface water rights as well as 375 AFY of water provided through the Bureau of Reclamation's San Juan Chama Project. However, there is growing concern about extreme drought in the basin, and what might happen to the water supply should portions of the river dry in the future. Because of this concern and a host of operational challenges at the BDD that has forced it to close for significant periods of time, the County's primary strategic goal for the water utility is to identify other sources of backup supply.

Aquifer storage and recovery is an excellent option for the County to pursue to achieve this goal. The County currently has water rights in excess of current delivery requirements. Native rights cannot be stored and are lost down-river if they cannot be used at the time they are available in the river. San Juan Chama Project (SJCP) water can be stored in Abiquiu Reservoir, but this involves a storage fee and evaporative losses. This project would bring this water through the BDD and store it in the local aquifer, reducing conveyance time and evaporative losses. Doing so would increase efficiency, decrease waste, provide a reliable annual backup supply to the county, and would make water accessible even when the river is dry. The project will take place entirely on private land, in partnership with the land developer Rancho Viejo de Santa Fe, Inc., and utilize existing wells and infrastructure. This will keep the costs low and demonstrate the utility of an ASR project in a state that has few examples of success.

This project consists of two wells, an injection well and a production well, located approximately one mile apart from each other. Both wells were drilled between 2002 and 2006, and used as part of an ASR demonstration project funded by Rancho Viejo de Santa Fe, Inc., and former New Mexico Governor Bill Richardson's Water Innovation Fund. The demonstration test included 6-months of injection and one year of monitoring post injection from 10 monitoring wells. The demonstration project concluded that the wells were capable of injecting and producing up to 240 acre-feet per year with no long term adverse effects on the aquifer. The infrastructure still exists and Rancho Viejo remains committed to participating in the project. The infrastructure now needs to be updated and upgraded for a built out project that can connect to the County water utility.

The project will consist of seven major components:

1. A new pump including electricity hookup and construction of a pump house;
2. A pipeline to tie each well into the existing County infrastructure – approximately 900 feet of pipe.
3. Design Costs for connecting to the system – The wells and pumps were previously designed for the demonstration project but not to tie into the County system. The system

needs to be reevaluated for its expanded purpose – estimated to be about 12% of total project costs.

4. Constructing any needed treatment facilities including de-chlorination;
5. Permitting with New Mexico Office of the State Engineer for ASR;
6. Permitting with the New Mexico Environment Department for injecting treated drinking water into the aquifer; and
7. Additional monitoring wells or other infrastructure as required from the permits.

Table 1 – Implementation Timeline and Milestones

Task	2019			2020												2021					
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Completion of Design																					
Bidding Phase																					
Construction Phase																					
OSE Permitting																					
NMED Permitting																					
Recharge Phase																					
Pumping Phase																					
Project Monitoring/ Reporting																					

OSE – New Mexico Office of the State Engineer

NMED – New Mexico Environment Department

Performance Measures

Potential performance measures include:

- Monitor volume of water injected
- Monitor volume of water produced from aquifer post-injection
- Monitor volume of water delivered to County utility customers
- Monitor water quality pre- and post-injection

The Project will install flow meters and monitoring wells to measure the volume of water that is discharged into the aquifer. The increase in groundwater availability during dry years and drought conditions will provide a measure for the drought resiliency benefits of this Project.

Additionally, the Project will also design and install a pipeline capable of delivering water throughout the Project system and finally to SFCU facilities for use. Once the wells, treatment facilities, and conveyance system have been completed, the project will be capable of delivering a backup supply of water to SFCU.

- Improve water management

SFCU will have the flexibility to use water immediately, store water for later use, or loan stored water to another water user. SFCU and the New Mexico Office of the State Engineer (OSE) will maintain records of all water banked, recovered and used so that the storage and use of water is fully accounted for. Also, the Project will provide SFCU and other state agencies with up to date data on groundwater flow patterns and aquifer transmissivity and geography. Water managers will therefore have a better idea of how to manage the aquifer, the lifespan of the aquifer, and the effects of SFCU's use on downstream users.

This project will also further SFCU's goals of protecting and conserving groundwater resources for periods of drought. Instead of using existing groundwater resources when surface water is limited, the Project will allow SFCU to use banked surface water instead. Santa Fe County has already taken actions to protect existing groundwater supplies by relying solely on surface water when possible, and the storage of surface water when there is excess water available will provide an additional buffer. Additionally, the Project partners will consult with and obtain all required permits from the OSE and NMED to ensure the Project does not cause damage to the environment or drinking water supplies.

Evaluation Criteria

Criterion A – Project Benefits

How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?

Santa Fe County receives nearly all of its annual water supply through the Buckman Direct Diversion (BDD), a surface water diversion and treatment facility on the Rio Grande. However, surface water supplies and system utility demands are not in sync, with water supply highest in the spring when demand is still low. This project would decouple supply and demand, and allow for production at higher rates early in the calendar when water supply is historically most available. This achieves resiliency especially during the periods first stressed by drought which are the late summer peak demand periods for the Utility (when water supply is low, and demand is high). These periods will be the first stressed as drought builds. As snowpack becomes less dependable and rain more common in the winter months, ASR provides in-basin storage for when water is needed later in the year or in subsequent years. With proper maintenance, this project will continue to provide these benefits indefinitely.

The BDD is dependent on a flowing river to deliver both native and Reclamation Project water. Should the Rio Grande dry at any point, as it has done for many years in Central and Southern New Mexico, it would cease being an efficient conveyance of even stored SJCP water to the County. This project provides a source of supply not constrained by the increasingly variable flow of the Rio Grande.

Will the project make additional water supplies available?

- *If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated?*

Yes. The project is estimated to inject and produce 240 AFY. This number was estimated as part of the testing and review process done by Balleau Engineering during the demonstration phase of the project. Some of this water will come from the San Juan Chama Project and might otherwise be stored upstream, but any native water not stored is lost, and this project provides a storage option for treated native water. Once fully permitted, it is anticipated that SFCU will inject up to 240 acre-feet per year. During times of low or inavailability of surface water supply, the SFCU can then recover and use the stored water as needed to meet current demands and minimize the impact of surface water shortages.

- *What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?*

Santa Fe County projected it will deliver 1,469 AF to its utility service area through the BDD in 2019. The Project's injection of 240 AF will increase the County's water supply by 16.3% of current County demands.

- *Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies.*

Identifying a full year of backup supply which is not directly dependent on the Buckman Direct Diversion is the County's top priority strategic goal (see Appendix 5). The only other source of backup supply currently available to the County is through an agreement with the City of Santa Fe for 1,350 AFY of backup. Due to historic over-pumping, even this number would be difficult for the city to provide over multiple years in a long term drought scenario, without acquiring additional offset rights. The 1,350 AFY also does not meet the goal of a full year of backup for the County. The backup provided by this project would bridge the gap between 1,350 and 1,469 AFY even during a long-term drought scenario.

Will the project improve the management of water supplies? For example, will the project increase efficiency, increase operational flexibility, or facilitate water marketing (e.g., improve the ability to deliver water during drought or access other sources of supply)?

- *If so, how will the project increase efficiency or operational flexibility?*

As noted above, this project decouples water supply and water demand, adding significant flexibility in terms of when water is run through BDD. Water could be conveyed at optimal times to reduce power costs, and reduce stress on the BDD system.

- *What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?*

The only storage capacity the County has is for 375 AFY of SJCP water, in Abiquiu Reservoir in the Rio Chama. The County's remaining 2,713 AFY of native surface water rights cannot be

stored for later use. Providing a storage opportunity for this water will allow County water managers to manage native flows more efficiently and have another tool to achieve the goal of efficient conjunctive use with the City of Santa Fe.

What percentage of the total water supply does the water better managed represent? How was this estimate calculated?

Santa Fe County's total native rights are 2,713 AFY. Total demand for 2019 is 1,469 AF, so additional water in the ASR system will constitute 9 percent of the County's total native rights, and 16 percent of the County's total 2019 demand.

Provide a brief qualitative description of the degree/significance of anticipated water management benefits.

The Santa Fe County subdivision of Eldorado has a summer peaking factor that challenges pipe capacity conveyance from BDD, when combined with the needs of the subdivision of Rancho Viejo. The locations of the wells are downstream of Rancho Viejo, therefore pipe capacity from BDD to Rancho Viejo will not be burdened if this water is used to meet Eldorado summer peaks. This would reduce the need to increase pipe sizes, a considerable expense to the County.

Santa Fe County and the City of Santa Fe are also diligently exploring all possible avenues to cooperatively manage their water resources. This includes finding ways to pool storable SJCP water and use all non-storable water each year together. This ASR project adds another tool in this storage swapping opportunity.

- *Will the project make new information available to water managers? If so, what is that information and how will it improve water management?*

ASR is a relatively new concept for utilities in New Mexico. This project would be the first of its kind in northern New Mexico, and would provide both Santa Fe County, the City of Santa Fe, and the State of New Mexico with a working example of how ASR could be done on a scale that is achievable to other utilities. With this project, the County and other state agencies can evaluate storage efficiency, energy costs, availability and timing of supply, and ability to recover water stored in large quantities. This information will be valuable to the County as it scales up its ASR program, and can be utilized by other utilities in the basin. It will also inform the State on how it can more efficiently permit projects such as this.

What is the estimated capacity of the new well(s), and how was the estimate calculated? How much water do you plan to extract through the well(s)? Will the well be used as a primary supply or supplemental supply when there is a lack of surface supplies? Please provide information documenting that proposed well(s) will not adversely impact the aquifer it/they are pumping from (overdraft or land subsidence). At a minimum, this should include aquifer description, information on existing or planned aquifer recharge facilities, a map of the well location and other nearby surface water supplies, and physical descriptions of the proposed well(s) (depth, diameter, casing description, etc.). If available, information should be provided on nearby wells (sizes, capacities, yields, etc.), aquifer test results, and if the area is currently experiencing aquifer overdraft or land subsidence. Please describe the groundwater monitoring plan that will

be undertaken and the associated monitoring triggers for mitigation actions. Describe how the mitigation actions will respond to or help avoid any significant adverse impacts to third parties that occur due to groundwater pumping. This is what we should bring up to warren as info we do not currently have available and need for it to be worked on as much as practicable before app due 3/27.

Aquifer Characterization

The demonstration project provided a comprehensive analysis of the aquifer and geology of the project site. The site overlies part of the Santa Fe embayment of the Espanola structural geologic basin, a shallow, transitional basin between the deeper San Luis Basin to the north and Albuquerque-Belen Basin to the south. The basins are part of the Rio Grande Rift. The major basin-fill unit at the study site is the Tertiary Santa Fe Group, consisting of the Ancha and Tesuque Formations.

The Tesuque Formation consists of unconsolidated to semi-consolidated sands, silts, clays and minor gravels derived from the Sangre de Cristo Mountains to the east. Groundwater below the study site is stored in and moves through sand and gravel beds enclosed in silt and clay of the Tesuque Formation. Thickness of the Tesuque Formation is up to several thousand feet. The Tesuque Formation is overlain by about 200 feet of unsaturated Ancha Formation.

Groundwater flow below the site is generally west or southwestward from mountain-front recharge at the foot of the Sangre de Cristos to discharge points at La Cienega Springs and the Santa Fe River. Depth to water ranges 250 to 300 feet across the test site. The hydraulic gradient across the site is about 100 feet/mile.

Well Characterization

There will be two primary wells in this project, one injection well and one production well. The wells were drilled between 2002 and 2006 and were tested as part of the demonstration project in 2006/2007.

The production well is the older of two wells, drilled in 2002 for Rancho Viejo. The well was drilled to 1,330 feet and completed with a 570-foot long screen to total depth. The injection well was drilled to 1,320 feet in March of 2006, with a screen interval of 590-1,310 feet. The well was completed with 12-inch diameter stainless steel wire-wrap screen.

Characterization of Well Impact to Aquifer

Once the project is fully operational, the well can inject 150 gallons per minute. This water will be injected into the aquifer along the screened portion of the well. This water will be treated to meet State of New Mexico Environment Department (NMED) standards so that no harm occurs to the environment. The amount of water that will be injected will depend on the OSE's permit conditions.

Additional studies will be completed to determine the "area of hydrologic effect" and how the discharged water impacts the aquifer. The OSE will review and possibly do their own modelling in or to determine the anticipated impacts of the discharged water on nearby well users and on the aquifer. Similar studies will be done to determine the recovery well's impacts.

Criterion B – Drought Planning and Preparedness

- *Explain how the applicable plan addresses drought. Proposals that reference plans clearly intended to prepare for and address drought will receive more points under this criterion.*

The Amended and Restated Water Resources Agreement between the City of Santa Fe and Santa Fe County ties the County to any emergency water conservation rules put out by the City of Santa Fe. These rules would reduce demand in times of extreme drought.

The County Strategic Plan recognizes the importance of identifying backup supplies in conjunction with mitigation strategies to reduce demand in times of drought. Water restrictions have a social and economic cost, and increasing backup supplies will insure that future water restrictions are only as stringent as needed.

The Santa Fe Basin Study, conducted by the Bureau of Reclamation, Santa Fe County, the City of Santa Fe, Sandia National Laboratories, and CDM Smith, was completed in 2015. The study projects a significant supply gap for the City and the County by 2055, due in part to changes precipitation patterns and overall reduction in surface water supply over time.

- o *Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?*

The Santa Fe Basin Study was produced through a collaborative process between the City, County, Bureau of Reclamation and the general public. Public meetings were held to identify possible mitigation alternatives to addressing a reduction in supply and ultimately a supply gap.

- o *Does the drought plan include consideration of climate change impacts to water resources or drought?*

Climate change will exacerbate the effects of drought in the County. The Basin study ran several climate models, with varying assumptions on how climate will affect water supply in the future, and the Santa Fe County Strategic Plan connects backup supplies directly with the effects of climate change on water supply.

- *Describe how your proposed drought resiliency project is supported by and existing drought plan. Does the drought plan identify the proposed project as a potential mitigation or response action?*

The study for the Santa Fe Basin identifies direct injection as one of five adaptation strategies for the study area. The Santa Fe County Water Policy Advisory Committee (WPAC) produced a white paper for the Board of County Commission (BCC). The BCC was very interested in pursuing ASR as a way to increase the County's backup supply. WPAC felt ASR would be effective but had some concerns. These included the cost of drilling new or retrofitting existing wells for injection, the complexity of the permitting process, and whether the County had enough surplus water to justify these expenses.

This project remedies all of these concerns while still providing the benefits of ASR mentioned in the white paper. The primary well infrastructure is already in place, and the County has a willing private partner in Rancho Viejo de Santa Fe to help defray costs. This project is also relatively small, and the County has more than enough surplus water rights to inject. Because a demonstration phase has already been implemented and only treated drinking water will be injected, the County expects the permitting process to be less problematic than a new project with less polished water might be.

- *Does the proposed project implement a goal or need identified in the drought plan?*

The City and County's declared goal of conjunctive management of water in the basin means that both entities are working together to use surface water as efficiently as possible to reduce the times when groundwater pumping is required.

This ASR project achieves this goal by storing excess surface water supply and allowing the County to use that supply in times when non-renewable groundwater pumping would be required.

Criterion C – Severity of Actual or Potential Drought Impacts to be addressed by the Project

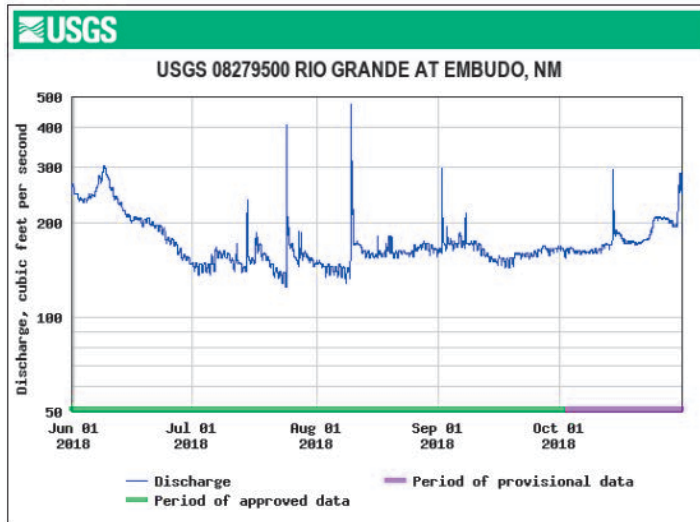
Describe the severity of the impacts that will be addressed by the project:

What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken (e.g., impacts to agriculture, environment, hydropower, recreation and tourism, forestry), and how severe are those impacts? Impacts should be quantified and documented to the extent possible. For example, impacts could include, but are not limited to:

- *Whether there are public health concerns or social concerns associated with current or potential drought conditions (e.g., water quality concerns including past or potential violations of drinking water standards, increased risk of wildfire, or past or potential shortages of drinking water supplies? Does the community have another water source available to them if their water service is interrupted?).*

Santa Fe County does not have an adequate backup supply of water, should surface water supplies become unavailable for lengthy periods of time. The Santa Fe Basin Study concluded that the City and County would have a combined gap of at least 5,500 AFY and up to 9,000 AFY depending on different climate scenarios.

- *Whether there are ongoing or potential environmental impacts (e.g., impacts to endangered, threatened or candidate species or habitat).*



The Buckman Direct Diversion is governed by a 2006 Fish and Wildlife Service Biological Opinion (BO) related to three threatened and endangered species: The Rio Grande silvery minnow, the southwest willow flycatcher and the bald eagle. This BO has specific requirements for the intake facility when native flows in the river fall below a threshold. These are not theoretical restrictions, and were fully enforced for over three months during the summer of 2017, when the Rio Grande saw record-low native flows and was below 200 cubic feet per second for most of the

summer.

- *Whether there are ongoing, past or potential, local, or economic losses associated with current drought conditions (e.g., business, agriculture, reduced real estate values).*

The Santa Fe and greater Upper Rio Grande Basin are fully appropriated basins. That means that there are no unused water rights available in the basin. As drought conditions increase in frequency and severity, the need for drought emergency restrictions for county water users will increase as well. These restrictions can have a real impact on tourism in the County as well as growth in the housing market.

- *Whether there are other drought-related impacts not identified above (e.g., tensions over water that could result in a water-related crisis or conflict).*

The City of Santa Fe is obligated to provide the City up to 1,350 AFY in backup water from their wellfield. However, there is a general understanding that it is politically infeasible to cut the County off should that not be enough to provide water to County customers.

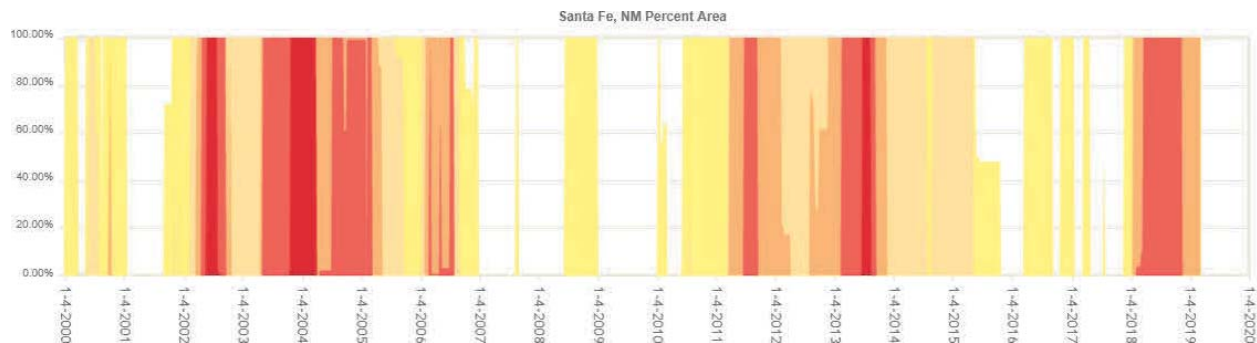
Should the situation arise that the County required more backup from the City than it was prepared to provide, this would cause significant tension between the two governments. This might reverse the progress we have made in repairing this relationship in recent years.

- *Describe existing or potential drought conditions in the project area. Describe any projected increases to the severity or duration of drought in the project area resulting from climate change. Provide support for your response (e.g., reference a recent climate change analysis, if available).*

The Santa Fe Basin Study evaluated water supply given different climate change scenarios covering the two major factors that affect climate: temperature and precipitation. Regardless of what model was used, the study anticipated a decrease in a reliable water supply over time.

- *Is the project in an area that is currently suffering from drought or which has recently suffered from drought? Please describe existing or recent drought conditions, including when and the period of time that the area has experienced drought conditions*

As can be seen from the Drought Monitor summary below, drought is a common and ongoing condition in the Santa Fe area. While this winter's strong snowpack has provided some relief for the current water supply, the County is still in severe drought conditions and has been in some level of drought for a majority of the past 20 years.



Criterion D – Project Implementation

- *Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*

The Project will begin with filing applications for required permitting with the NMED and OSE. This process will entail using existing aquifer data gathered during the pilot project to draft and file groundwater models to estimate the impacts of discharging and recovering water from the aquifer. Project hydrologists will detail the models and estimates in reports that will be filed with the OSE and NMED. This information will include water quality and chemical analysis, aquifer characteristics, well discharge and recovery rates, the area of hydrologic effect, water levels, and flow rates. This information will be reviewed by the NMED and OSE to ensure no harm occurs to the environment, the general public, existing water users, or to the state's water resources.

As the permitting process is ongoing, SFCU contractors will design blueprints for the Project's water delivery systems. This will include pipelines, booster stations, and any other equipment or infrastructure needed to complete water delivery. Any easements or ROW's will also be obtained during this process.

After permits have been obtained and designs have been completed, construction of the Project infrastructure will begin. When all conveyance systems have been completed, the project demonstration phase will begin. This phase will enable SFCU to test modeling estimates and monitor discharge and recovery impacts.

Following several months of discharge and recovery testing, final estimates will be provided by Project hydrologists to determine the amount of water that can be discharged and recovered. These estimates will be provided to the OSE for final approval. Once the OSE has given final approval the Project can begin full scale operation.

See Table 1 for an implementation schedule.

- *Describe any permits that will be required, along with the process for obtaining such permits.*

This project will require two permits, one from OSE and one from NMED.

OSE requires an Underground Storage and Recovery permit to operate and ASR project. County staff have discussed the permitting process with OSE. The OSE application process will require an in depth and detailed technical review of the Project's water use. This will include an analysis of the area of hydrologic affect, of impacts on nearby water users caused by injection and recovery well activities, as well as transfers of SJCP water to the injection wells. This process is designed to ensure there is no long term harm to existing water users or to New Mexico's water resources. This will only be the 7th ASR project in New Mexico and the 3rd direct injection project. Each permit has been different, as the regulators learn more about ASR. However, OSE is committed to assisting the County through the permitting process. A pre-application meeting will be held with OSE hydrologic and administrative staff to ensure this process is as transparent as possible.

In addition, an interest letter has been sent to NMED, and once the design evaluation of the injection well has been completed, this permitting process will begin. The project design includes de-chlorination, and the permit will likely require a bench test to assess blending the source water with groundwater to ensure there is no adverse effect on the aquifer. Because the source water is treated drinking water, the County does not expect a difficult permit process with NMED.

- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

Some minor design will be required as part of the project. This includes design of: pipeline improvements, well house and pump equipment for existing wells, the power supply interconnection for both well houses, and pipeline connection to the existing County water lines. In addition, a treatment facility will be created, flow meters and monitoring wells will be installed, and the existing injection and recovery wells will be repaired.

- *Describe any new policies or administrative actions required to implement the project.*

The Buckman Direct Diversion produces an Annual Operating Plan where each partner is required to provide a monthly demand projection. This policy documents governs the operations of the intake facility and treatment plant for each partner. The County currently requests less water than we have the rights for, in line with monthly demand. We would modify this demand projection to include deliveries to the injection well. This is an operational rather than political document and no conflict is anticipated in making this change.

Approval from the BCC is also required. See attached BCC Resolution.

- *Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?*

Environmental and cultural compliance costs were estimated to be approximately \$5,000. This number was provided through consultation with the Bureau of Reclamation Albuquerque Area Office.

Criterion E – Nexus to Reclamation Priorities

- *How is the proposed project connected to a Reclamation project or activity?*

One source of water that will be injected is water obtained through the San Juan Chama Project, a trans-basin diversion from the San Juan Basin into New Mexico. Santa Fe County is allotted up to 375AFY of San Juan Chama water, dependent on annual supply.

- *Will the project benefit any tribe(s)?*

No.

- *Does the applicant receive Reclamation project water?*

Yes, through the San Juan Chama Project.

- *Is the project on Reclamation project lands or involving Reclamation facilities?*

No.

- *Is the project in the same basin as a Reclamation project or activity?*

This project is in the same groundwater basin as the Pojoaque Regional Water System. This system, being designed and constructed by BOR, in partnership with the other parties of the Aamodt Water Settlement, will provide water to the Pueblos of Nambe Pojoaque Tesuque and San Ildefonso, as well as Santa Fe County residents in the Nambe-Pojoaque-Tesuque surface water basin.

- *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The Buckman well field, where the County's primary backup water rights reside, is hydrologically connected to the NPT basin. Reducing the County's need to pump water from this well field will prevent the need to purchase additional offsets in the NPT basin (which are controversial and very difficult to obtain) and leave more water for consumers in the basin in drought conditions.

Criterion F – Department of Interior Priorities

The Department of Interior's goal to modernize infrastructure and support public-private partnerships is supported with this project. Not only will this project help modernize the Utility's water infrastructure and support the expansion of aquifer storage and recovery technology in the state of New Mexico, it will also facilitate a significant private sector match by Rancho Viejo de Santa Fe, LLC., reducing the amount of tax-payer funded money put toward the project.

In addition, the Buckman Direct Diversion is governed by the 2006 Fish and Wildlife Service BO related to the three threatened and endangered species mentioned above. The actions taken at BDD to benefit the endangered species' are beneficial to endangered species support actions taken by the DOI.

Also, the Project's beneficial impacts to the Rio Grande improve watershed health and provide ancillary benefits to Rio Grande Compact delivery requirements.

Project Budget

Funding Plan and Letters of Commitment

The project will be partially funded by Rancho Viejo de Santa Fe, Inc. and 14% funded by this federal grant. A contract signed by Rancho Viejo for engineering work and a cost estimate for hydrogeology work for the project are attached as Appendices 7 and 8.

Budget Proposal

Molzen Corbin	Consulting Engineer	\$	54,219.00	
Balleau Groundwater Inc.	Consulting Hydrologist	\$	54,283.00	
Law and Resource Planning Associates	Legal	\$	50,000.00	Estimate
TBD Engineering/Construction			\$1,923,781.00	
			\$2,082,283.00	

Budget Narrative

The budget includes engineering and construction work to be provided by Molzen Corbin of Santa Fe. Balleau Groundwater Inc. will be providing hydrogeological services at a total cost of \$54,238.00. Additional construction and engineering work is estimated to cost \$1,923,781.00 (see Appendix 9). Legal and administrative costs are estimated to be \$50,000.00. This results in a total project cost of \$2,082,283.

Santa Fe County is requesting \$291,519.62 in federal grant funds for this project.

Environmental and cultural resources compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The environmental impact of project construction will be localized to a small area around each well. Less than 1,000 feet of pipe will need to be constructed, along with two pump houses on previously disturbed land.

While a portion of the aquifer and water quality testing and modeling was completed as part of the demonstration project, additional testing will be required as part of the permitting process with the New Mexico Environment Department and the New Mexico Office of the State Engineer.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

No.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

No.

When was the water delivery system constructed?

The County ran lines to the community of Rancho Viejo for the first time in the early 1990s, and has continued to expand service since that date as the development grows.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

No.

Are there any known archeological sites in the proposed project area?

No.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No. The project will provide backup water to the entire County and will not affect any particular community disproportionately.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No. The project is not located in proximity to any tribal lands or sacred sites.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No. The area has been disturbed in the past, and no non-local soils or other sources of invasive species are expected to be brought to the area as part of the project.

Required permits or approvals

As noted in Evaluation Criterion D, permits from the New Mexico Environment Department and from the New Mexico Office of the State Engineer are required for this project.

The County has made preliminary contact with both agencies, and will be pursuing a joint permitting process with the two agencies to reduce costs. The Office of the State Engineer has submitted a Letter of Support for this project and the County is committed to providing the required analysis and data to support a successful permit with both agencies.

Existing drought contingency plan (if applicable)

Appendices 1 through 6 together comprise a comprehensive drought management plan for the County of Santa Fe.

Letters of project support

The New Mexico Office of the State Engineer submitted a letter of support for ASR projects and for working with Santa Fe County to the Bureau of Reclamation on March 19, 2019. A copy of the letter is in Appendix 10.

Official Resolution

In process. This will be provided within 30 days of submittal of the application.

Appendices

Appendix 1 – Pilot Report

Appendix 2 – Basin Study

Appendix 3 – Amended and Restated Water Resources Agreement

Appendix 4 – City of Santa Fe Chapter 25, Section 5

Appendix 5 – Santa Fe County Strategic Plan

Appendix 6 – 2019 BDD Operating Plan

Appendix 7 – Rancho Viejo Limited Partnership/Molzen Corbin Cost Acceptance

Appendix 8 – Los Atrevidos, Inc./Balleau Groundwater, Inc. Cost Proposal

Appendix 9 – Estimate from Molzen Corbin on Cost of Project Construction

Appendix 10 – Letters of Support

MOLZENCORBIN

Rancho Viejo Limited Partnership
 Aquifer Storage and Recovery
 Engineer's Opinion of Probable Cost

Item No.	Description	Unit	Qty	Unit Price	Amount
Production Well Facilities					
1	Well cleanout, rehabilitation, and disinfection	LS	1	\$50,000.00	\$50,000.00
2	Furnish and install 300-gpm submersible well pump and motor, pitless adapter, drop pipe and wellhead completion, complete in place	LS	1	\$150,000.00	\$150,000.00
3	New well building including footings, slabs, exterior concrete aprons, masonry, roof structure, metals and architectural work, complete in place	LS	1	\$100,000.00	\$100,000.00
4	Process Piping and Equipment in Building: All exposed piping, valves, flow meter, fittings; coating systems; piping supports and all associated appurtenances, complete-in-place.	LS	1	\$60,000.00	\$60,000.00
5	Disinfection room equipment incl. 50 gal sodium hypochlorite storage tank, injection pump, tubing, wall mounted eyewash, complete in place	LS	1	\$20,000.00	\$20,000.00
6	Mechanical equipment and plumbing incl. ventilation, air conditioning/heating, drains and drain piping, complete in place.	LS	1	\$40,000.00	\$40,000.00
7	Electrical work incl. lighting, variable frequency drive, flow meter, pressure transducer, cable and conduit, programmable logical controller, control panels, complete in place.	LS	1	\$75,000.00	\$75,000.00
8	Site Work: Including grading, earthwork, drain piping, drainage, chain link security fence and gates, access road, and all related appurtenances, complete-in-place.	LS	1	\$60,000.00	\$60,000.00
9	8" PVC well discharge line	LF	370	\$50.00	\$18,500.00
10	Wet tap connection to existing 16" line	LS	1	\$10,000.00	\$10,000.00
Injection Facilities					
11	Well cleanout, rehabilitation, and disinfection	LS	1	\$50,000.00	\$50,000.00
12	Drop pipe with downhole flow control orifice	LS	1	\$50,000.00	\$50,000.00
13	Control valve and Meter Vault, including excavation and backfill, concrete vault, control valve, mag meter, piping and appurtenances, and	LS	1	\$75,000.00	\$75,000.00
14	Wellhead improvements	LS	1	\$7,500.00	\$7,500.00
15	6" PVC injection well transmission line	LF	1,300	\$40.00	\$52,000.00
16	Yard piping	LS	1	\$10,000.00	\$10,000.00
17	Electrical site work	LS	1	\$15,000.00	\$15,000.00
18	Site Work: Including grading, earthwork, drain piping, drainage, chain link security fence and gates, access road, and all related appurtenances, complete-in-place.	LS	1	\$40,000.00	\$40,000.00
Other Project Construction Requirements					

Rancho Viejo Limited Partnership
Aquifer Storage and Recovery

19	Undefined Elements (15%)	ALLOW	1	\$130,000.00	\$130,000.00
20	SWPPP	LS	1	\$5,000.00	\$5,000.00
21	Construction Staking Services by New Mexico Registered Surveyor	LS	1	\$10,000.00	\$10,000.00
22	Relocation of Utilities Allowance	ALLOW	1	\$25,000.00	\$25,000.00
23	Reclamation Seeding	LS	1	\$15,000.00	\$15,000.00
24	Testing Allowance	ALLOW	1	\$35,000.00	\$35,000.00
25	Electrical Service Allowance	ALLOW	1	\$150,000.00	\$150,000.00
26	Mobilization, Insurance, and Bonds	LOT	1	\$40,000.00	\$40,000.00
27	Demobilization and Submittal of all Closeout Documents	LOT	1	\$10,000.00	\$10,000.00
SUBTOTAL				\$1,303,000.00	
NMGRT				\$92,000.00	
CONSTRUCTION COST OPINION				\$1,395,000.00	

Professional Services	Amount
ASR Permit Support (by Engineer only)	\$50,000.00
GWDP Application	\$50,000.00
County Sustainable Land Development Permit Support (for well house)	\$50,000.00
Engineering Design Fee	\$156,000.00
Survey Fees	\$26,000.00
Geotechnical Investigation Fees	\$13,000.00
Engineering Support During Bidding and Construction (8 months)	\$56,000.00
Construction Observation Fees (Part time, 6 months at \$14,000/mo)	\$182,000.00
Subtotal Professional Services	\$583,000.00
NM Gross Receipts Tax	\$46,000.00
Total Professional Services	\$629,000.00

Construction Cost Opinion	\$1,395,000.00
Professional Services Opinion	\$629,000.00
Subtotal Project Costs and Fees	\$2,000,000.00



**STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER**

CONCHA ORTIZ Y PINO BUILDING, 130 SOUTH CAPITOL, SANTA FE, NM 87501

TELEPHONE: (505)

827-6091

FAX: (505) 827-3806

**JOHN R. D'ANTONIO JR., P.E.
STATE ENGINEER**

Mailing Address:
P.O. Box 25102
Santa Fe, NM 87504-5102

March 19, 2019

Attn: Ms. Julie J. Hendricks
Bureau of Reclamation
Financial Assistance Support Section
P.O. Box 25007
Denver, CO 80225

Dear Ms. Hendricks and the WaterSMART Grant Review Committee.

I am writing today to express my support for Santa Fe County's WaterSMART Drought Resiliency Grant application to build out an Aquifer Storage and Recovery (ASR) project in the Santa Fe area. The New Mexico Office of the State Engineer (NMOSE) supports Underground Storage and Recovery in the State as an effective and efficient way to store surplus water supplies.

Like much of the state, the Santa Fe Basin is vulnerable to the effects of drought. Surface water supplies in New Mexico are highly variable, and dependent on snowpack in the upper watershed. In 1999, the New Mexico Legislature enacted the Ground Water Storage and Recovery Act to allow governmental entities to store surplus supplies of water underground and to withdraw the recoverable amount at a later date. In adopting the Act, the Legislature found that groundwater recharge, storage, and recovery have the potential to reduce investment and operations costs, improve water and environmental quality, reduce aquifer dewatering and groundwater decline, and lead to more effective use of the state's water resources. In doing so, underground storage and recovery helps these entities to fully utilize their water rights and reduce the harmful effects of drought.

NMOSE has not evaluated this specific project and cannot prejudge any permit application that may be submitted for State Engineer approval. All applications are evaluated on their merits once submitted. Nonetheless, the NMOSE is committed to working with government entities to permit more ASR projects in the state. This WaterSMART proposal is an excellent opportunity to assist Santa Fe County in developing a full-scale project. NMOSE is prepared to work with the County to ensure that the project is designed and implemented in line with the regulatory requirements of the state. I strongly encourage that the Bureau of Reclamation support this proposal.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. D'Antonio Jr.", written over a horizontal line.

John R. D'Antonio Jr., P.E.

JRD/kme



City of Santa Fe, New Mexico

200 Lincoln Avenue, P.O. Box 909, Santa Fe, NM 87504-0909

www.santafenm.gov

Alan Webber, Mayor

Councilors:

Signe L. Lindell, Mayor Pro Tem, District 1

Renee Villarreal, District 1

Peter N. Ives, District 2

Carol Romero-Wirth, District 2

Roman "Tiger" Abeyta, District 3

Chris Rivera, District 3

Mike Harris, District 4

JoAnne Vigil Coppler, District 4

Shannon Jones, Utility Director


Attn: Ms. Julie J. Hendricks
United States Bureau of Reclamation (USBR)
Financial Assistance Support Section
P.O. Box 25007
Denver, CO 80225

Dear Ms. Hendricks and the WaterSMART Grant Review Committee,

Please accept this letter of support for the Santa Fe County WaterSMART Drought Resiliency Grant application to design and build an aquifer storage and recovery (ASR) system. The City of Santa Fe (City) and Santa Fe County (County) partnered together with USBR to complete the Santa Fe Basin Study (Study). One of the primary adaptation strategies identified in the Study was for the City and County to implement ASR and store surplus water underground in reserve to supplement water supply during times of drought and fire when renewable surface water supplies are insufficient to meet demand. The Study concluded ASR was effective way to mitigate climate change impacts on future water supplies in Santa Fe.

The ASR effectively creates a new source of water supply for the County that will lessen the burden on the City to provide supplemental water when the County supplies are diminished. ASR will improve the overall water supply resiliency of the Santa Fe region. The City does not have specific details of the ASR plan and expects the design and permit will comply with all rules and regulations. In closing, the City supports the County's ASR proposal and requests that USBR please consider it for funding under the WaterSMART program.

Sincerely,


Shannon Jones,

BALLEAU GROUNDWATER, INC.

901 RIO GRANDE BLVD. NW, SUITE F-242

ALBUQUERQUE, NEW MEXICO 87104

W. PETER BALLEAU CPG, P.Hg., P.G. (AZ, KS, TX)
DAVE M. ROMERO P.H.
STEVEN E. SILVER GISP

January 24, 2019

Mr. Warren Thompson
Los Atrevidos, Inc.
PO Box 236
Santa Fe, New Mexico 87504

Subject: General Work Scope in Support of Hydrologic Services Regarding Aquifer
Storage and Recovery at Rancho Viejo

Dear Mr. Thompson:

As we discussed, Balleau Groundwater, Inc. (BGW) has prepared an initial work scope for hydrologic support in development of an aquifer storage and recovery (ASR) program at Rancho Viejo de Santa Fe (Rancho Viejo). At our meeting in December, you indicated that plans are in a preliminary stage, but the concept is for Rancho Viejo to partner with Santa Fe County with intent to store excess San Juan Chama Project water in the local aquifer with injection wells. The water would then be recovered later for use.

An ASR project with injection wells involves an extensive application process with the New Mexico Office of the State Engineer (OSE) that has only recently advanced through the process of application development and eventual approval of a permit in new in New Mexico. We understand that the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) obtained a permit for ASR injection wells with plans to initiate the first use of storing drinking water in a New Mexico aquifer just last year. We discussed plans to meet with Ms. Katherine Yuhas, who manages ASR at ABCWUA, to gain insight to the overall process involved from application development to permit approval. We look forward to such a meeting and perhaps meetings with others who may provide experience-based guidance.

The work scope described herein considers early-stage work elements geared toward project planning and preliminary analysis of hydrologic effects associated with ASR in the aquifer system near Rancho Viejo. That is, the scope involves coordination with Rancho Viejo and the County of Santa Fe on specific project details, meeting with ABCWUA (and perhaps others) to learn from their experience, and development of a hydrologic planning document that characterizes hydrologic aspects of ASR in the local aquifer system. One key aspect of filing an application for ASR is development of an understanding of the *Area of*

Hydrologic Effect, which is defined in the ASR regulation as “*The underground area where the water is stored and located, hydrologically connected surface waters, adjacent ground water areas in which water rights exist that may be impaired, the land surface above the underground areas, and any additional land surface used for seepage or infiltration.*” (NMAC 19.25.8.7.A). The hydrologic planning document would provide a preliminary characterization of the Area of Hydrologic Effect that will have utility in later ASR filings with the OSE.

Approximately four miles southwest of Rancho Viejo, the perennial flow of Cienega Creek is supplied by springs and baseflow from the regional aquifer system. Some of the Cienega Creek flow supplies local irrigation. We anticipate that the ASR project will have a hydrologic effect at La Cienega Creek. Withdrawal of groundwater will eventually deplete flow whereas injection of water will add flow. A good strategy for ASR is to operate it so that effects to the creek are maintained with minimal additional flow (above pre-ASR baseline conditions), rather than with any depletion to flow to prevent impacts on irrigation operations along the creek.

The ASR regulation describes development of a Project Proposal and eventually an Application for Permit. The process will require a team to handle specific aspects of the project related to evidence of technical capability, financial capability and hydrologic feasibility. BGW can develop technical evidence related hydrologic feasibility; however, other experts will be needed for evidence of technical capability (engineering) and financial capability. An expert on water quality and potential changes to water chemistry induced by ASR is anticipated to also be needed. Information from our analysis of hydrologic effects will fit within the framework of information provided by other entities that will eventually form the required team.

A factor to consider is possible acquisition of groundwater credit from infiltration of treated effluent to the regional aquifer from any existing infiltration ponds. The OSE has a guideline for return flow and discharge credit that may be applicable to Rancho Viejo water operations. We worked with a New Mexico city to file an application for groundwater credit in the context of the guideline. The application involved a multi-year process of evaluating hydrologic effects in a setting similar to that of ASR regulations. The city applied for 750 acre feet per year (AF/Y) and was approved for 747 AF/Y. Consideration of groundwater credit may have utility for Rancho Viejo groundwater use or at the very least it may provide increased baseflow to Cienega Creek that is currently not accounted for or perhaps discussed.

A summary of hydrologic support involving project planning and preliminary analysis of hydrologic effects associated with ASR (as described above) is provided below. The end product for this early-stage phase of work is a report that would provide hydrologic-based planning information and a technical foundation for hydrologic aspects of an application for ASR. An early step of the ASR process is development of a Project Proposal

for a pre-application meeting with the OSE. The report will include hydrologic information that can be used in a later-phase Project Proposal per the ASR regulation.

Planning and Coordination

Coordination on project planning and concepts of application process
(meet with Rancho Viejo, Santa Fe County, ABCWUA and perhaps
others).
(4 staff-day equivalent) \$5,920

Evaluation and Analysis

Analysis of hydrologic effects from ASR. The work will build from
testing and analysis completed at the existing injection well site. The
analysis scope will depend on findings during the planning phase above.
Anticipated analysis will include hydrologic effects to the aquifer,
neighboring wells and to La Cienega Springs will characterized. An
alternatives assessment will examine ASR at the existing injection
facility, potential additional facilities, the possibility of groundwater
credit and use of SJCP water directly vs. ASR.
(18 staff-day equivalent) \$26,640

Reporting

Prepare a report of technical findings and recommendations.
(12 staff-day equivalent) \$17,760

Estimated Cost	\$50,320
NMGRT	\$3963

Total Estimated Cost*	\$54,283
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*Follow-up work related to ASR would be for additional cost billed on our Fee Schedule.

The foregoing estimate suggests a budget in the range of about \$55,000 is needed for technical support in an early-stage phase of the ASR project. The estimated costs are based on the above work elements, tasks and the estimated level of effort. The actual work required, the schedule of deliverables, and the level of effort may vary as directed by you or your representatives. As the project moves forward, the scope of work may require adjustments to better fit a setting which is not yet apparent. The estimated costs above do not reflect a fixed cost for our services and line items are not intended to be binding. BGW does not undertake fixed-price projects for programs having uncertain requirements, but proposes to work on the basis of our attached Fee Schedule, which is updated annually. Monthly invoices will reflect actual costs incurred for work authorized by you and

Mr. Warren Thompson
January 24, 2019

4

performed on behalf of the project in terms of hours and expenses. The actual cost for the program may be more or less than the estimated cost, but will be fully coordinated with and directed by you as the requirements of the project develop.

Our current workload and committed schedules will allow us to attend periodic meetings related to *Planning and Coordination* as described in the work elements above through the end of March 2019. We could begin with the *Evaluation and Analysis* portion of the work scope near the end of March 2019 with progress occurring over the next two to three months.

If you find this plan acceptable, we can set up an Authorization to Proceed.

We are pleased to be invited to provide you with a proposed scope of work for this project. Please call with any questions you may have, or if you would like to discuss a different line of thinking for your program.

Very truly yours,

BALLEAU GROUNDWATER, INC.

A handwritten signature in black ink, appearing to read 'D. Romero', with a long horizontal flourish extending to the right.

Dave M. Romero
President

DMR/tb
Attachment: Fee Schedule

BALLEAU GROUNDWATER, INC.

901 RIO GRANDE BLVD. NW, SUITE F-242
ALBUQUERQUE, NEW MEXICO 87104

2019 FEE SCHEDULE FOR CONSULTING SERVICES

W. Peter Balleau	\$250/hour
Principal Staff	\$185/hour
Professional Hydrogeologist/Hydrologist	\$80-160/hour
Technical/Clerical Support	\$60/hour

Work authorized and performed in the reasonable conduct of the client's program is billed at standard hourly rates for professional and support personnel.

BGW is reimbursed for actual expenses incurred on behalf of client work including travel, the use of personal cars in the field and charges for daily rental of BGW equipment, printing and reproduction and other direct costs. An administrative charge of five percent is added to expenses.

Invoices are billed monthly and are payable within 30 days of the billing date; accounts unpaid more than 60 days after the billing date are subject to one percent interest per month (12 percent annual rate) from the invoice date.

All subcontracted services are subject to a surcharge of 15 percent.

MOLZENCORBIN

March 15, 2019

Mr. Warren Thompson
Rancho Viejo Limited Partnership
P.O. Box 236
Santa Fe, New Mexico 87504

RE: Rancho Viejo Aquifer Storage and Recovery Support

Dear Mr. Thompson:

This letter is to serve as our Engineering Services Proposal for supporting an application to the New Mexico Office of the State Engineer (OSE) for Aquifer Storage and Recovery (ASR), which is called Underground Storage and Recovery or USR by the OSE. Rancho Viejo is partnering with Santa Fe County to pursue an ASR permit to store County water diverted from the Buckman Direct Diversion in the Santa Fe Group aquifer below the Santa Fe Community College District utilizing Rancho Viejo's existing wells. The application process with the OSE and with NM Environment Department includes the following steps:

1. Pre-Application Meeting and Project Proposal (OSE/NMED)
2. Groundwater Discharge Permit Application (NMED)
3. Application for USR Permit for a Pilot/Demonstration Project (OSE)
4. Application for USR Permit for a Full Scale Project (OSE)

A Capability Report is required for both USR applications.

There are a number of alternative methods for injecting and recovering the water (e.g., inject and recover from the same well, or inject and recover from different wells) that will impact the scope of the infrastructure required to support the pilot study and the full scale project. Part of the work proposed herein is to assist the Rancho Viejo/County team in defining the specific scope of the ASR project, and to provide a conceptual level layout of the infrastructure required to support both the pilot/demonstration and full scale projects. Because the project scope is yet to be defined, this proposal covers support up to and including the Pre-application Meeting and Project Proposal. If Rancho Viejo and the County choose to move forward with the subsequent phases of the application process following the Pre-Application Meeting, Molzen Corbin will submit a proposal to support those efforts.

The enclosed work plan outlines the tasks, man-hours and costs associated with this proposed Scope of Work. Work tasks include:

- Kickoff Meeting with Rancho Viejo and County
- Prepare Request for Information (RFI) to Rancho Viejo and County
- Organize data and responses to RFI
- ASR project definition and scoping
- Define electrical power and control requirements
- Coordination and meetings with Rancho Viejo/County team

Mr. Warren Thompson
March 15, 2019
Page 2

- Prepare text, figures, and tables for Pre-Application Meeting
- Prepare cost estimates
- Prepare Notice of Intent to Discharge (DBS&A)
- Geochemical mixing study (DBS&A)
- Attend Pre-Application Meeting
- Project Management

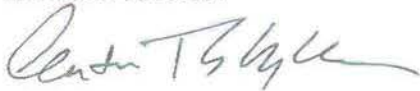
We assume that the County will prepare the ASR application forms and therefore, have not included any time for that task. The Scope does not include any work after the pre-application meeting has been held.

We propose to undertake this work on a Time and Materials Basis for an estimated cost not to exceed \$54,219.27 (including NMGR) without the prior written approval of Rancho Viejo Limited Partnership.

If this proposal is acceptable to the Rancho Viejo Limited Partnership, please countersign in the space below and return one copy to our office for our files. If you have any questions, or require any further information, please do not hesitate to call me.

Sincerely,

MOLZEN CORBIN



Clayton Ten Eyck, P.E.
Vice President, Water Resources

CWC:scc
Enclosure

Accepted By:

RANCHO VIEJO LIMITED PARTNERSHIP

By: 

Title: President Los Arborescences S de RL de CV
General Partner

Date: 3-21-19

CONTRACT AMOUNT
 Aquifer Storage and Recovery
 Rancho Viejo

MOLZENCORBIN

Casey Cook				COST	CALCULATED CONTRACT AMOUNT
BASIC FEE (Labor)					
SUBTOTAL LABOR					\$31,742.50
TOTAL BASIC FEE					\$31,742.50
REIMBURSABLE SUBCONSULTANTS				Phase	
Daniel B. Stephens and Associates	Geochemistry and GWQB NOI		I	\$15,954.00	
Subconsultant Subtotal				\$15,954.00	\$15,954.00
Mark-up				10%	\$1,595.40
SUBTOTAL ADDITIONAL SERVICES				\$15,954.00	\$17,549.40
REIMBURSABLES					
			Quantity		
In-House Copies	\$0.11	250.00		\$27.50	
In-House Color Copies (8 1/2 x 11)	\$1.00	100.00		\$100.00	
In-House Color Copies (11 x 17)	\$2.00	100.00		\$200.00	
In-House Large Format Prints	\$3.00	25.00		\$75.00	
Mileage	\$0.545	1,040.00		\$566.80	
SUBTOTAL REIMBURSABLES					\$969.30
SUBTOTAL BASIC FEE, ADD. SERVICES, REIMBURSABLES					\$50,261.20
NMGRT				7.8750%	\$3,958.07
TOTAL					\$54,219.27

WATER RESOURCES MANHOUR ESTIMATE
 Aquifer Storage and Recovery
 Rancho Viejo
 Casey Cook

MOLZENCORBIN

		WATER RESOURCES			ADMIN			
No.	Project Task	Principal Engineer	Senior Engineer	Engineering Intern II	Departmental Totals	ADMIN - Support	ADMIN. Totals	Grand Totals
I.	Support for Pre-Application Meeting							
1	Kickoff Meeting with Rancho Viejo and County	0.50	4.00	6.00	10.50		0.00	10.50
2	Prepare request for information to Rancho Viejo and County	1.00	4.00	2.00	7.00		0.00	7.00
3	Organize data and responses to RFI	0.50	5.00	5.00	10.50		0.00	10.50
4	ASR project definition and scoping	4.00	20.00	30.00	54.00		0.00	54.00
5	Coordination and meetings with Rancho Viejo/County team	1.00	20.00	8.00	29.00		0.00	29.00
6	Prepare, text figures and tables for Pre-application meeting	2.00	15.00	20.00	37.00	6.00	6.00	43.00
7	Prepare cost estimates	0.50	4.00	8.00	12.50		0.00	12.50
8	Attend Pre-Application Meeting		8.00	8.00	16.00		0.00	16.00
9	Project Management		10.00		10.00		0.00	10.00
Subtotal Hours Support for Pre-Application Meeting		9.50	90.00	87.00	186.50	6.00	6.00	192.50
Subtotal Fees Support for Pre-Application Meeting		\$2,042.50	\$16,200.00	\$9,135.00	\$27,377.50	\$540.00	\$540.00	\$27,917.50
Total Labor Hours		9.50	90.00	87.00	186.50	6.00	6.00	192.50
Standard Billing Rate or Fee		\$215.00	\$180.00	\$105.00		\$90.00		
Fee Dollars		\$2,042.50	\$16,200.00	\$9,135.00	\$27,377.50	\$540.00	\$540.00	\$27,917.50

ELECTRICAL MANHOUR ESTIMATE

Aquifer Storage and Recovery

Rancho Viejo

Casey Cook

MOLZENCORBIN

		ELECTRICAL			Departmental Totals	Grand Totals
No.	Project Task	Principal Engineer	Senior Engineer	Engineering Intern I		
I.	Support for Pre-Application Meeting					
1	Define electrical power and controls requirements	0.50	8.00	2.00	10.50	10.50
2	Prepare cost estimates	0.50	2.00	4.00	6.50	6.50
3	Attend meetings and conference calls		6.00		6.00	6.00
Subtotal Hours Support for Pre-Application Meeting		1.00	16.00	6.00	23.00	23.00
Subtotal Fees Support for Pre-Application Meeting		\$215.00	\$3,040.00	\$570.00	\$3,825.00	\$3,825.00
Total Labor Hours		1.00	16.00	6.00	23.00	23.00
Standard Billing Rate or Fee		\$215.00	\$190.00	\$95.00		
Fee Dollars		\$215.00	\$3,040.00	\$570.00	\$3,825.00	\$3,825.00



2019 Annual Operating Plan

BUCKMAN DIRECT DIVERSION
2019 Annual Operating Plan

Introduction

The Buckman Direct Diversion (BDD) has continued to successfully operate and produce high quality drinking water for the citizens of Santa Fe and Santa Fe County since beginning operations in 2011.

The primary purpose of this Annual Operating Plan (AOP) is to collect and summarize the projected wholesale water delivery orders of the City of Santa Fe (City), Santa Fe County independent water utility (County), and the Club of Las Campanas, Inc. (CLCI), collectively called the BDD Partners, for calendar year 2019. Additionally, this AOP sets forth specific procedures and coordination requirements among the BDD Facilities Manager, the BDD Support Entity, City of Santa Fe (SE), and the BDD Partners pertaining to water orders, water deliveries, water use accounting, water rights, and limitations on diversions for compliance with legal conditions. The intergovernmental agreements designate the City of Santa Fe as the Support Entity through December 1, 2020.

The Facility Operations and Procedures Agreement (FOPA) at Section 27 requires each BDD Partner to provide its projected daily, weekly, and monthly project water orders for the upcoming year by October 1 of each year. The BDD Facilities Manager, as agent of the SE, will distribute the draft AOP containing a draft delivery schedule with all of the Partners' projected water delivery orders and associated procedures to the BDD Partners for review and comment by December 1 of each year. The calendar year is the period covered by the AOP to correspond to annual state administration of water rights.

Policy direction with regard to the AOP is limited to the following items:

1. Status and approval of the Annual Operating Plan. The BDD Facilities Manager will draft and finalize an AOP and will submit it to each partner for review and comment. The AOP subject matter is limited to water orders and the technical and legal requirements of placing orders, assuring diversions complying with water rights and Endangered Species Act requirements, and accounting for diversions and deliveries of water. It does not establish any new authorities or governance policies and therefore will not be submitted for BDD Board Approval. The final version will be approved by signature of an authorized official of each Partner and the BDD Facilities Manager. It may be amended as needed and as agreed. Amendment requires the same four signatures of approval.
2. Water Rights. The BDD Intergovernmental Agreements require that each BDD Partner own and maintain valid water rights to support its orders for diversion and delivery of its water by the BDD. It is important this structure is literally implemented by the BDD Partners such that the BDD Facilities Manager can rely on the Partners to assure that water is legally available for daily diversion in amounts to meet water orders.

BDD Partners 2019 Water Delivery Orders

In accordance with the Project Management and Fiscal Services Agreement (PMFSA) at 6.F., the BDD Facilities Manager requested 2019 water orders from each BDD Partner.

Table 1 provides data regarding the BDD Partners' monthly water orders for 2019 in million gallons (MG) and acre-feet (Ac-Ft).

2019 Buckman Direct Diversion (BDD) Partners' Water Requests						
	Santa Fe County	Club Las Campanas (via County)	Club Las Campanas SJC/Native	City of Santa Fe	Total	
					MGD	Acre-ft/year
Jan	0.80	0.05	0.00	2.90	3.75	11.51
Feb	0.70	0.05	0.11	3.00	3.86	11.85
Mar	0.70	0.26	0.21	3.00	4.17	12.80
Apr	0.80	0.38	0.38	3.50	5.06	15.53
May	1.20	0.37	0.79	4.50	6.86	21.04
Jun	1.50	0.38	0.81	6.00	8.69	26.68
Jul	1.70	0.37	0.58	3.00	5.65	17.33
Aug	1.50	0.37	0.37	3.50	5.74	17.61
Sep	1.40	0.38	0.27	6.50	8.55	26.24
Oct	0.70	0.31	0.11	4.90	6.02	18.46
Nov	0.70	0.16	0.00	4.20	5.06	15.53
Dec	0.80	0.11	0.00	4.00	4.91	15.05
Million Gallons Per Year						Acre-ft/year
Annual Total	381	97.314	110.518	1489.8	2078.632	6379.1

Figure 1 illustrates the BDD Partners' 2019 water delivery requests per month

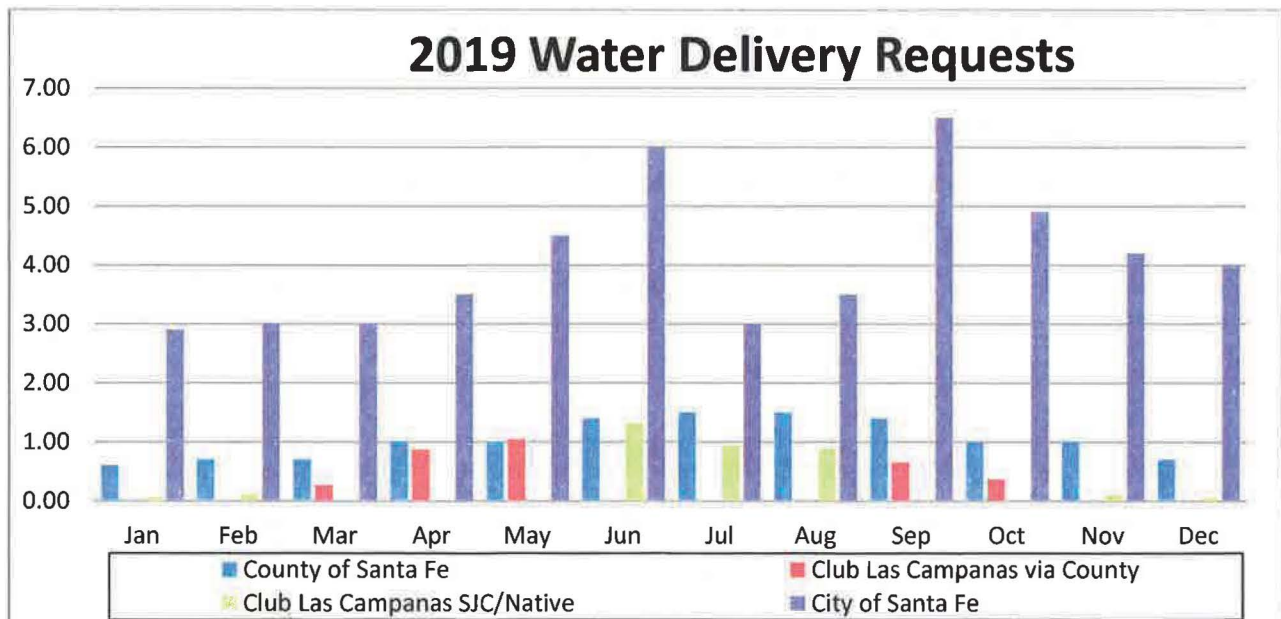
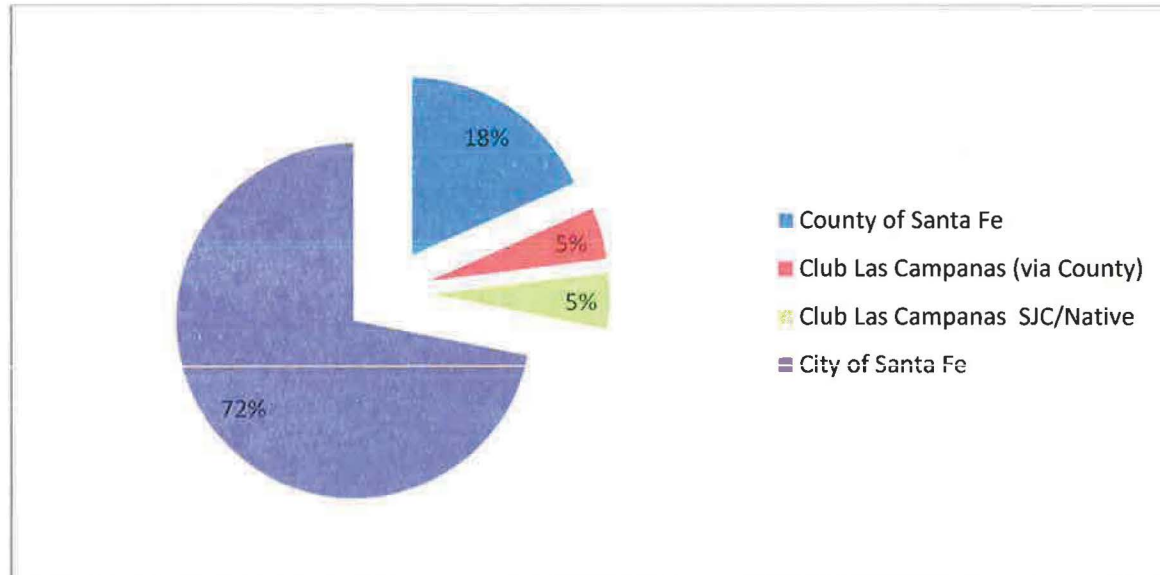


Figure 2 illustrates the BDD Partners' 2019 water delivery requests per year



Additional Purposes of this Annual Operating Plan

This ninth year of BDD operations the AOP will address normal operations, unique issues associated with the complex new project's operation, as well as unforeseen and/or one-time need for issues. The BDD Facilities Manager and partners undoubtedly will have to resolve other issues in order for the BDD to fulfill and properly account for Partners' wholesale water delivery orders in 2019 and to provide needed operational flexibility to meet the BDD purposes.

The remainder of this 2019 AOP individually addresses the following topics:

1. BDD Purposes and Adaptive Management to Meet the Partners' Changes to their Orders
2. BDD Facilities Manager Acceptance of LCLP Water Delivery Order
3. Water Rights:
 - a. Description of Partners' Water Rights
 - b. Roles and Responsibilities of Partners Regarding Water Rights
 - c. Native Water Rights Diversion Compliance with the Endangered Species Act
 - d. San Juan-Chama Project Orders, Reservoir Releases Calls and Reconciliation with Actual Use
4. Water Delivery Metering and Accounting
5. Fiscal Responsibilities
6. Adjustment of Daily Water Delivery Orders by the Partners to Reflect Actual Utility Demand
7. Non-Delivery of BDD Wholesale Water Supply Due to Uncontrollable Circumstances
8. Operations Features To Conserve Resources
9. Annual Operating Plan Approval

1. BDD Purposes and Adaptive Management to Meet the Partners Changes to their Orders

BDD purposes include supplying all or part of the public water system base load demand, peak production when needed, and providing a reliable and sustainable source of surface water supply to reduce reliance on groundwater resources. To meet the Partners' water demand, this AOP assumes continuous BDD production whenever the BDD is operational.

This AOP recognizes that actual water deliveries by the BDD will deviate from the BDD Partner water orders. While these deviations require active management, adjustments have become part of daily and weekly operating procedures. Deviations may result from BDD facilities shutdowns (planned and unplanned), adjustments to meet monthly delivery targets, adjustments to meet unanticipated demand needs (often due to precipitation or temperature), and/or to allow the City to conserve water in the municipal reservoirs as a pro-active response to drought mitigation.

The BDD will work with the BDD Partners and the BDD Board to adaptively manage BDD water deliveries to meet changes to Partner orders for BDD water deliveries, stay within the approved annual operating budget, and to resolve associated issues and problems.

The City coordinates water deliveries from the BDD with production from its two groundwater well fields and the Canyon Road Water Treatment Plant to provide drinking water to City and County customers, and, when necessary, wholesale deliveries of bulk water to the County. The 2005 Water Resources Agreement between the City and County provides for delivery of up to 1350 acre-feet of wholesale water to the County; the County currently takes delivery of wholesale water when the BDD is not operating. The 2005 Water Resources Agreement also provides for drought protection water for the County under catastrophic conditions. The Las Campanas Homeowners Water Cooperative Association (Water Coop) is a bulk potable water customer of the County; The Club of Las Campanas Inc. (CLCI) is a raw water customer of the County and the BDD.

2. BDD Facilities Manager Acceptance of CLCI Water Delivery Order

In November 2011, the County entered into a Raw Water Supply Agreement with CLCI to provide up to 600 acre-feet of raw water deliveries for CLCI's golf course irrigation. The County agreed to deliver raw water to Booster Station 2A, where CLCI installed pumps, a 12" pipeline, and meters to convey the water to CLCI's facilities. The raw water delivery system is designed to be operated from both the BDD's and CLCI's SCADA systems. CLCI's maximum pump capacity at BS2A is 3.02mgd (2,100 gpm) and the BDD's minimum raw water pump rate is 4.5mgd (3,125 gpm). The BDD and Partners have developed and agreed on a revised operating plan to assure continued raw water supply for CLCI when the BDD is not diverting water from the Rio Grande for other Partners.

CLCI diversified its water rights portfolio in 2014 by leasing 600acft of San Juan-Chama (SJC) water and expects to have 600 acft in 2019. CLCI has an agreement with the City regarding storage at Abiquiu reservoir to make this water readily available. During 2019 CLCI will utilize their own SJC water rights to receive 350 ac-ft. directly through the BDD and the County will provide CLCI with at least 300 ac-ft. of raw water.

BDD, County, and CLCI staff have developed and established operational procedures to provide CLCI with raw water during times when the BRWTP should choose not to accept raw water but the raw water quality meets the BDD's policy requirements. Currently CLCI has approximately a thirty (30) day supply in onsite storage capacity.

3. Water Rights

A clear delineation of roles and responsibilities assists in the complex management of water rights and water resources aspects of BDD diversions.

While the BDD is responsible for assuring that its diversions comply with all applicable laws and regulations and accounting of water use associated with cost accounting among BDD Partners, it is the BDD Partners' responsibility to maintain valid water rights to support their water orders.

3a. Description of Partner's Water Rights

The City's BDD Water Rights:

In accordance with the BDD Environmental Impact Statement, the City will divert only San Juan-Chama Project water permitted for BDD diversion by State Engineer Permit SP-2847-E. The City's portion of SP-2847-E is for 5,125.4 ac-ft./yr. For 2019, the City could request the State Engineer to divert up to 1,281.35 ac-ft. of additional San Juan-Chama water at the BDD.

The BDD calls for the City's San Juan Chama water from Abiquiu Reservoir; the released water incurs a 1.1% conveyance loss before arriving at the BDD. However, if the Abiquiu Reservoir has been placed into flood operation mode and therefore no San Juan Chama water can be released, the BDD will divert native water and then substitute the water diverted with San Juan-Chama water stored in Abiquiu.

The City's 2019 water delivery orders total 4,572 acre-feet.

The County's BDD Water Rights:

During 2019, the County will be utilizing native Rio Grande water rights (2,713 ac-ft.) permitted under SP-4842, as well as San Juan Chama Project water (367.5 ac-ft.), permitted under SP-2847-E to deliver water to its customers and to the Club Las Campanas.

The County's 2019 water delivery orders total 1,469 acre-feet.

The Club at Las Campanas BDD Water Rights:

The Club will be utilizing a combination of SJC and native water rights and water purchased from the County for diversion at the BDD to be pumped to their pump station at BS-2A. The Club will utilize San Juan Chama Project Water (up to 600 ac-ft.), permitted under SP-284-N-A, as well as 300 ac-ft. of raw water provided by the County.

Las Campanas's 2019 water delivery orders total 650 ac-ft. This is comprised of 300 ac-ft. provided by Santa Fe County and 350 ac-ft. leased San Juan Chama water rights.

3b. Role and Responsibilities of BDD Partners Regarding Water Rights

The BDD intergovernmental agreements identify water rights permitting, permit compliance, and maintenance as the responsibility of each BDD Partner. The Joint Powers Agreement (JPA) requires

each Partner to independently provide water rights in good standing to support its water delivery orders. The BDD Board has a specific limitation of authority stated in JPA Section 9, *Limits of Board Authority*:

The BDD Board's authority and duties do not encompass ... acquisition or permitting of use of water rights or contract water rights.

The JPA also says in Section 14. *BDD Capacity Allocation*:

Each entity's diversions shall be based upon its own water right or contract right and each entity is responsible for acquisition and maintenance of its own water rights.

Therefore, the BDD Facilities Manager, in making actual diversions of water from the Rio Grande, directed by the provisions of the JPA, relies on each of the BDD Partners designating and maintaining sufficient water rights in good standing to support all BDD river diversions required to support the Partners' water delivery orders.

The BDD Facilities Manager will not divert water to partially or wholly satisfy a Partner's water delivery order until that Partner has provided a written list of valid water rights, permitted by the State Engineer to the BDD, that are designated and sufficient for that Partner's water delivery order.

Each Partner, by signature of this plan, agrees to immediately notify the BDD Facility Manager and BDD Chief Operator if those diversions would in any way violate any of the requirements and conditions of any supporting water right (s).

The BDD Facilities Manager, with the cooperation of the Project Manager and the BDD Partners, will report diversions and water right use to the Office of the State Engineer monthly.

The BDD Project Manager is responsible for reviewing and tracking the actual use of water and water rights based on BDD-measured diversions, deliveries, and cost accounting.

Each Partner is responsible for accounting use of specific native Rio Grande water rights as specified under the relevant permit conditions.

The BDD Partners have developed an Optimized Annual Accounting Protocol (Attachment B) to meet project permitting requirements and increase efficiencies of water right accounting and BDD Project Operations.

3c. Native Water Rights Diversion Compliance with the Endangered Species Act

The responsibility of complying with Environmental Impact Statement Record of Decision water diversion requirements falls on the BDD Project Manager. Limitations on the BDD diversions include those provided in the Biological Assessment as submitted by the U. S. Forest Service to the U.S. Fish and Wildlife Service. The BDD Partners have agreed to incrementally curtail diversion of native Rio Grande water under low flow conditions to avoid interference with flows maintained by others for endangered Rio Grande Silvery Minnow habitat. The curtailment is initiated when the 5-day moving average of Rio Grande flows at the Otowi gage, minus San Juan-Chama Project water ordered for diversion by the BDD and the Albuquerque Drinking Water Project, falls below 325 cfs.

The Partners', BDD Facilities Manager's, and BDD Project Manager's roles and responsibilities associated with curtailment are delineated below.

- a. The BDD Facilities Manager will notify relevant BDD Partners if curtailment of their native water diversions is anticipated or has been initiated.
- b. If such a low flow curtailment occurs during a period of time when a Partner's native water rights are being diverted, the BDD will curtail that Partner's diversions in accordance with the project-specific regulatory limits (Attachment A). The BDD Facility Manager will rely on details or changes regarding curtailment requirements provided by those Partners who use Native Rio Grande water rights.
- c. Any Partner with a Native Rio Grande water right order, may with the necessary lead time, replace a native water order with an alternate water source, such as San Juan-Chama Project water. In such a case the BDD Facilities Manager, working with the BDD Project Manager, will place the appropriate San Juan-Chama call with the Bureau of Reclamation.

A copy of the BDD's River Diversion Curtailment Protocol is provided in Attachment A.

3d. San Juan-Chama Project Orders, Reservoir Release Calls, and Reconciliation with Actual Use

- a) The BDD will closely coordinate all calls, monthly accounting and reporting associated with San Juan-Chama project water use with the BDD Project Manager.
- b) The BDD will rely on the Partners to maintain valid SJC water rights so that the BDD can divert water to fulfill each partner's water orders in full compliance with all applicable water rights conditions and limitations.
- c) Each Partner will fulfill its responsibilities, pursuant to the BDD intergovernmental and internal Partners agreements, to identify in the annual order when SJC Project water is to be used to support its water delivery orders.
- d) Each Partners will inform the BDD of any modifications to its daily SJC water order a week or at a minimum 2 working days in advance.
- e) BDD Partners will coordinate with the BDD and BDD Project Manager regarding use of their San Juan-Chama Project water at the BDD diversion in the event of native water diversion curtailments. Partners will endeavor to inform the BDD of replacement water sources a week or at a minimum 2 working days in advance.
- f) The BDD, in coordination with the BDD Project Manager, will measure, track and account for BDD Partner SJC use, as needed for cost accounting.
- g) The BDD and the BDD Project Manager will track SJC water use to report monthly water usage to the Office of the State Engineer. This process will include monthly reconciliation between the BDD diversion data and the RG accounting model.
- h) Each BDD Partner, independently, is responsible for reconciling the actual use of SJC Project water based on measured diversions and deliveries, including monthly and annual

reconciliation of San Juan-Chama Project water releases from reservoirs against diversions and groundwater offsets. Reconciliation will also address communications with federal agencies and the State Engineer about San Juan-Chama Project storage accounts in reservoirs.

4. Water Delivery Metering and Accounting

All water diverted at the BDD facility is measured through three intake and one sediment/water return meter. Raw water deliveries to CLCI are metered at Booster Station 2A. All BDD facility delivered potable water is pumped and measured through booster pump stations 4A and 5A. Additional delivery meters, some owned by the BDD facility (Wild West, 2 meters; South Meadow 10", 1 meter, South Meadow 18" bi-directional, 1 meter; Airport Road, 1 meter), some master meters owned by the City of Santa Fe (Beckner , 2 meters; Richards, 2 meters; and Agua Fria, 2 meters), and County customer meters (WaterCoop domestic, 1 meter; Aldea/Sunflower, 2 meters, Archeological Building, 1 meter), allow the BDD Facilities Manager, the BDD Project Manager, and the Partners to differentiate between potable water delivered to the County versus the City. It is anticipated that Santa Fe County will install three (3) additional master meters to improve efficiencies in the water accounting. These will include a "West Sector Meter, Campo Conejo Meter and Richards East Meter.

For any given period of time, usually a calendar month, the City drinking water deliveries from the BDD facility are calculated as the balance of the BDD facility finished water pumped through booster pump station 4A and 5A minus water delivered to the County independent water utility. The difference between water diverted and water delivered (non-revenue water) is apportioned to each of the BDD Partners according to their respective percentage delivery within an accounting period (usually a calendar month). Under the current accounting method, all non-revenue water (including line flushing, water for system pressurization, etc.) downstream of the BDD delivery location is absorbed by the City; a more equitable way of sharing in non-revenue water may be considered in the future.

The current roles and responsibilities with respect to water delivery metering and accounting are as follows:

- a. The BDD Facilities Manager will measure all diversions of water. These measurements will be continuous. The flows will be recorded and totalized daily.
- b. The BDD Facilities Manager will read those meters associated with bulk water delivery to each Partner as identified above.
- c. The BDD Facilities Manager will calculate the deliveries of water to the Partners.
- d. The BDD Facilities Manager will report the water use to the OSE and to the Partners monthly.
- e. The BDD Facilities Manager will calculate and report annual BDD water use by Partner.
- f. During times when the BDD cannot meet the County's water order because the BDD is unable to divert water, the County's water orders will be satisfied by the County/City 2005 Water Resources Agreement.
- g. On the day on which the BDD cannot deliver water, the BDD Facilities Manager will read the BDD delivery and the City→ County master meters identified above to distinguish between water delivered to the County by the BDD facility versus other City water supply sources.

5. Fiscal Responsibilities

- a. The BDD will bill the Partners—based on its **actual measured deliveries** of raw and/or drinking water during any billing period—for its share, pursuant to the FOPA Partner cost share requirements, of the **actual** fixed and variable costs of BDD OMR&R during that billing period.

The BDD will bill the City for the water deliveries, including all drinking water that is pumped by the BDD finished water pumps and not delivered to the County via the delivery and master meters. Therefore, BDD may bill the City for more or less water than the City ordered and more or less than the BDD intended to deliver, depending on the accuracies of the County and CLCI water orders with respect to actual County and LCLP water use.

Should the BDD be unable to divert and deliver water, the BDD will provide the Partners with City→ County master meter readings so that the City's Utility Billing Division can bill the County for water delivered under the County/City 2005 Water Resources Agreement.

In order to maintain the financial viability of the BDD facility, Partners will promptly pay for water deliveries.

The Partners will reimburse the BDD facility for the actual monthly costs of BDD operations through a series of advance payments for the budgeted cost of monthly operations followed by reconciliation payments if necessary at the end of each month based on actual monthly costs of BDD facility operations.

CLCI will fully cover all variable costs associated with the delivery of raw water from BS2A to the golf course.

If the Partner water demand during 2019 exceeds the Partner water delivery order, it may be necessary for that Partner to appropriate additional funds to the BDD for the additional water and for the BDD Board to amend its operating budget to incorporate the additional funds necessary to cover additional costs.

For 2019 expenses for raw water deliveries from the diversion structure to BS2A will be addressed as follows:

1. Variable costs for raw water ordered by and delivered to The Club will be billed to The Club.
 2. Variable costs for raw water ordered by the County and delivered to the Club will be billed to the County.
6. Adjustment of Daily Water Delivery Orders by the BDD Partners to Reflect Actual Utility Demand

Water demand is not precisely predictable. Spring, summer, and fall actual daily retail customer water demand varies with weather and actual amounts of precipitation prior to and during the demand period. Since the 2019 BDD Partners' actual water demand will vary from their projected daily water delivery orders, the following steps will be taken to adjust and reconcile water delivery orders during 2019.

1. The Support Entity will endeavor to maintain the BDD delivery volume at the amount set forth in the AOP by operating its other sources of supply to accommodate the expected difference between its prior delivery order and its expected actual water demand.
2. The City may adjust its daily delivery order for the subsequent day no later than 3:00 pm each day. If the City changes its daily delivery order, the BDD Facilities Manager will operate the BDD facilities to meet the adjusted daily demand. If the change is significant, the BDD Facilities Manager may adjust the SJC call accordingly.
3. The County will endeavor to adjust its daily delivery orders no more frequently than monthly, following its monthly comparison of its actual monthly demand with the previously projected monthly water delivery orders.

7. Non-Delivery of BDD Wholesale Water Supply Due to Uncontrollable Circumstances

The BDD will be unable to meet its wholesale customers' orders for waters from time to time due to circumstances beyond the control of the BDD Facilities Manager or the BDD Partners. For example, the BDD will not operate when suspended solids concentrations in the Rio Grande exceed a threshold value beyond which continued operation is not possible or in conflict with limits recommended by the BDD Board Engineer, might result in damage due to deposition of sediment within the raw water system, or would result in unacceptably high costs for removal and disposal of solids in the water treatment process. Similarly, the BDD may not operate when the Los Alamos National Laboratory Early Notification System indicates the Rio Grande may be influenced by runoff from Los Alamos Canyon. Raw water storage (up to 8 million gallons) and drinking water storage (up to 4 million gallons) may allow the BDD to continue to supply water for a short period of time following temporary curtailment of river diversions due to river water quality or other reasons.

During periods of BDD inability to fulfill water delivery orders, the City will supply both, its own and, in accordance with the 2005 County/City Water Resources Agreement, the County's potable water demands from stored drinking water and its other sources of water supply up to 1350 acre feet.

8. Operations Features To Conserve Resources

To the extent feasible, raw water pumping will be conducted during PNM electricity 'off-peak' hours in order to avoid contributing to PNM peak system demand and higher electric rates.

City orders for BDD water are weighted to the seasons of the year when the river water is generally much better quality. The cleaner, clearer water is the easier and cheaper to treat.

9. Annual Operating Plan Approval

The AOP will be agreed upon and signed by the BDD Partners. The AOP can be modified by mutual agreement of the BDD Partners as the calendar year progresses.

This plan was reviewed and approved by:



John Dupuis,
Utility Director, Santa Fe County

1/28/19

Date



Nick Schiavo,
Interim BDD Facilities Manager

1/4/19

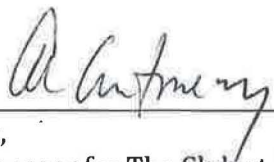
Date



Rick Carpenter
Acting Water Division Director, City of Santa Fe

1/8/19

Date



Al Antonez,
General Manager for The Club at Las Campanas

1/28/2019

Date

ATTACHMENT A

Buckman River Diversion Curtailment Protocol

**Only native Rio Grande River flows are affected by the curtailment policy
Curtailment will only have to take place on the months between March and October.**

Curtailment requirements are based on a 5-day average

To monitor native Rio Grande flow the BDD operations team at the Buckman Regional Water Treatment Plant registered with the USGS e-mail notification system and set the threshold to 500cfs at the Otowi gauge.

Rio Grande flow is monitored from March to October using the hydrologic model viewer, RiverView, which allows us to see the URGWOM model runs by the U.S. Bureau of Reclamation.

Native Rio Grande River diversion curtailments, which were required by the Biological Opinion, are addressed in the table below:

Native Rio Grande flows (cfs)	March Max Diversion (cfs)	April Max Diversion (cfs)	May Max Diversion (cfs)	June Max Diversion (cfs)	July Max Diversion (cfs)	August Max Diversion (cfs)	September Max Diversion (cfs)	October Max Diversion (cfs)
> 325	3.82	4.6	6.87	8.55	7.95	7.56	6.57	5.09
300	3.05	3.68	5.50	6.84	6.36	6.05	5.26	4.07
280	2.44	2.95	4.40	5.47	5.09	4.84	4.21	3.26
260	1.83	2.21	3.30	4.10	3.82	3.63	3.16	2.44
240	1.22	1.47	2.20	2.73	2.54	3.42	2.10	1.63
220	0.61	0.74	1.10	1.37	1.27	1.21	1.05	0.81
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

For example:

- If in March the 5 day average flow of Native Rio Grande water is greater than 325 cfs, a maximum 5-day peak of 3.82 cfs Native Rio Grande water can be diverted. On the day the 5 day average flow of Native Rio Grande water of less than 325 cfs is reached, a max of 3.05 cfs of Native Rio Grande water can be diverted.
- If in July the 5 day average flow of Native Rio Grande water is greater than 325 cfs, a maximum 5-day peak of 7.95 cfs Native Rio Grande water can be diverted. On the day the 5 day average flow of Native Rio Grande water of less than 325 cfs is reached, a max of 6.36 cfs of Native Rio Grande water can be diverted.
- If in July the 5 day average flow of Native Rio Grande water is less than 240 cfs, a max of 1.27 cfs of Native Rio Grande water can be diverted.

ATTACHMENT B

OPTIMIZED ANNUAL WATER RIGHTS ACCOUNTING PROTOCOL

Background

One of the principles of the shared nature of the BDD Project is that each of the partners (County, City and Las Campanas Coop 'LC Coop' & The Club at Las Campanas Inc. 'CLCI') provides access to their water rights that they want diverted and delivered to the respective points of interconnection where the BDD Project transmission lines terminate.

This memo is addressed to those persons at each of the 4 partners who have a role in managing the water rights covered by this policy. This memo will be included in the Annual Operating Plan for the BDD Project reviewed and approved by the BDD Project Partners.

The present accounting process for the diversion from the Rio Grande of SJCP and native NM water rights, and then delivery to each of the BDD Partners, has become inefficient and time consuming. In some cases, the complexity of the current accounting process has led to very significant staff time and reporting errors. The accounting process generally must be coordinated with state and federal agencies and must be done in accordance with BDD Project documents, OSE diversion permits and the Record of Decision for the EIS approval of the BDD Project. The state and federal agency accounting criteria requires the Project to provide detailed reports on volume, and attendant type of water right, that has been diverted.

The methods and procedures for Optimized Annual Water Right Accounting described below are designed to:

1. Lessen the time and resources required of staff to meet Project permitting requirements
2. Move the timing of native NM water rights diversions out of the restrictive time periods when conditions might adversely impact Project operations
3. Generally improve the efficiencies of operations and accounting to federal and state agencies as required by the respective permits
4. Improve the efficiencies of compliance with the City and County SJCP diversion permits
5. Generally optimize the use of SJCP water where appropriate and thereby make that SJCP water available for other purposes.

Introduction

In order to improve the efficiency of operations and the accounting process, staff has identified that an internal accounting process could be developed that changes the timing of diversions of the combined native NM water right portfolio. This proposal does not require the approval of the state and federal agencies and is designed to fit within the existing permit approvals.

For reporting to the state and federal agencies, this approach would show the native NM water rights being diverted at times of the year that avoid or lessen the low flow curtailment constraints described on pages 11-12 of the BDD Project Biological Opinion. By changing the timing of such diversions, the BDD Partners would create additional operational flexibility for the overall benefit of the BDD Project and staff of both the BDD Project and the agencies who monitor compliance with the existing permits.

Several permitting constraints limit the operational flexibility of the BDD Project. During the spring when the Rio Grande is in flood operations, SJCP water cannot be routed through Abiquiu Reservoir and BDD Project diversions of SJCP water can only be permitted by an inefficient process that requires an accounting 'exchange' for downstream stored water in coordination with state and federal agencies. The Biological Opinion limits the diversion of native NM water rights during times when the Rio Grande experiences low flow conditions. The SJCP diversion permits contain a strict rule that requires exact releases from upstream reservoirs and then exact diversions at the intake. The Optimized Annual Accounting method will provide compliance with the federal and state permits while also allowing for greater flexibility in operations for the Project and the BDD Partners.

The Optimized Annual Accounting method allows for some flexibility in the aggregate diversions since native NM water rights are available for diversion without calling for release. This change will allow native NM water rights to be diverted when they are most useful to meeting the combined BDD Project demands, and also allow SJCP water rights to be diverted when they are most useful to meeting the combined BDD Project demands. For example, the native NM water rights owned by the BDD Partners would be diverted during the likely flood operations time period to meet BDD Partner demand...and SJCP water rights owned by the BDD Partners would be diverted during the likely low flow time period to meet BDD Partner demand. A discrete amount of native NM water rights would be identified to balance the SJCP calls for delivery, and actual diversions must be within the native NM diversion flow constraint identified in the Biological Opinion. This will simplify the monthly accounting provided to the agencies and avoid changes to BDD Project operations during this time period. A significant part of the native NM water right portfolio will be scheduled for use during the likely flood operation time period to avoid changes in BDD Project operations during this time period. And the balance of the native NM water right portfolio would be used in the fall in order to preserve the combined SJCP water owned by BDD Partners.

Review of Permit Compliance

OSE permits: The City / County SJCP diversion permit contains the restriction described above, that strictly accounts for upstream reservoir releases and subsequent diversions. From the November 1, 2006 permit:

8. The maximum amount of San Juan-Chama Project water diverted in any day under this permit shall not exceed the amount of the permittees' San Juan- Chama water calculated to be in the Rio Grande at the BDD on that same day. The amount of

the permittees' SJCP water available for diversion at the BDD on a particular day shall be calculated as the amount of water released from either Heron or El Vado Reservoir two days prior to diversion at the BDD, less a 2% conveyance loss or the amount of water released from Abiquiu Reservoir one day prior to diversion at the BDD less a 0.9% conveyance loss. The State Engineer expressly reserves the right to adjust the travel time periods as better information becomes available or based on river channel conditions. The permittees shall notify the State Engineer at the time releases of SJC water are ordered to be released or are ordered to be discontinued.

9. The permittees' maximum peak daily surface water diversion rate shall not exceed 32.0 cfs. The State Engineer recognizes that other external factors may further limit the actual diversion rate.

Note that 'Otowí Gage native flows' is a defined term from the ROD (discussed below) and is calculated as the total Otowí gage flow less SJCP releases for municipal and industrial uses. This definition of native flow is different from the definition that is used elsewhere in Rio Grande water management.

The proposed Optimized Annual Accounting method does not conflict with the SJCP permit conditions of approval, and is intended to simplify compliance with the permit requirements.

Several native NM water right permits that are permitted for diversion from the BDD were reviewed, and they typically contain two provisions that relate to operations. From a County transfer approved in 2010:

8. The maximum instantaneous rate of diversion from the Buckman Direct Diversion under all permits (San Juan Chama Project water and native water) shall not exceed 32.0 cfs, inclusive of amount of water necessary for sediment removal.

9. Diversion of water under this permit shall be subject to adherence with the Staged Curtailment Schedule (U.S. Department of Interior, Fish and Wildlife Biologic Opinion, June 25, 2007 at 12) for the Buckman Project when Otowí Gage native flows are below 325 cfs.

Note that the requirement to comply with the Staged Curtailment Schedule has been the topic of a related work effort, and the OSE will not independently determine compliance with the BO requirement. The proposed Optimized Annual Accounting method does not conflict with the native NM water right permit conditions of approval, and is intended to simplify compliance with the permit requirements.

Staff of the OSE and ISC has indicated that they are not concerned with who is delivered which water rights (under the proposed Optimized Annual Accounting method) as long as the Rio Grande diversions are consistent with the Conditions of Approval of the permits.

BDD Board documents: The BDD JPA, City-County WRA and BDD PMFSA do not contain provisions that relate to the Optimized Annual Accounting method. BDD FOPA, section 8, states:

8. Water Rights and Divertible Water Supply. Each BDD Partner shall divert only that amount of water in the system for which water rights are in good standing with the New Mexico State Engineer, subject to the limitations on diversions at low flow set as forth in the BDD Project EIS or other applicable permits. The BDD Partners each recognize an individual responsibility to maintain their own water rights portfolio and to manage any water rights shortage within that portfolio. No BDD Partner shall make any claim or attempt to use another BDD Partner's water rights without the express written consent of that BDD Partner.

The final sentence of this section requires written consent to use another BDD Partner's water rights. In order to address this condition, staff and counsel recommend that the procedures described below be added to the BDD Project Annual Operating Plan. This Plan is prepared annually by the staff of the City, County and Las Campanas (CLCI and LC Coop), and is signed by the respective water utility directors.

BDD Project Biological Opinion: The Record of Decision issued by the US Forest Service and Bureau of Land Management incorporated the requirements of the Biological Opinion (BO) issued by the Fish and Wildlife Service. In general, the BO prescribes an annual maximum volume of diversion (8,730 ac-ft/yr), an annual maximum volume of SJCP and native NM water rights, and maximum rates of diversion (32 cfs, sediment return/net diversion, RG low flow native NM water right diversion limits). The BO does not contain a provision that limits the Optimized Annual Accounting method, and the proposed method intended to simplify compliance with the permit requirements.

Conclusion

In summary, the proposed Optimized Annual Accounting method provides for the full use of the native NM water right portfolio in the near term (providing the beneficial use requirement) and allows the BDD Partners to preserve as much SJCP water as possible in any given year. It provides a simplified and efficient process for staff and agency review, and is consistent with the permits and agreements for the BDD Project that have been reviewed.

Implementation of revised Optimized Annual Accounting Process

Staff and counsel recommend that the implementation of the revised accounting process be acknowledged by the respective water utility directors of the BDD Partners through inclusion in future year versions of the Annual Operating Plan (as is described in BDD Project documents).

Santa Fe County Draft Strategic Plan
May 2018

Completed		Responsible Parties																Notes																FY2023			
FY18		FY2019				FY2020				FY2021				FY2022				FY2023																			
Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4																
Objective 1.5: Improve Adult Detention Facility Re-Entry Program																																					
Strategy 1.5.1: Assess Re-entry program and wrap around service needs and gaps																																					
Action: Identify and request additional funding sources, including potential opioid litigation funds and legislative authorization FY19-20																																					
Public Safety Director/Warden																																					
When? Who is responsible? What action steps?																																					
Public Safety Director/Warden																																					
Action: Build community involvement and secure citizen buy-in FY19-FY20																																					
When? Who is responsible? What action steps?																																					
Public Safety Director/Warden																																					
When? Who is responsible? What action steps?																																					
Public Safety Director/Warden																																					
When? Need specific action steps?																																					
Performance Measure: (how to measure recidivism?)																																					
POPULATION GOAL 2: PROMOTE A SUSTAINABLE COMMUNITY																																					
Objective 2.1: Provide Affordable Housing																																					
Strategy 2.1.1: Bolster Housing Trust Fund																																					
Action: Identify revenue sources and annual amounts: consider transfer tax, repealing low income property tax rebate and allocating additional property tax, recording fee, general fund FY19																																					
Housing Director																																					
Included in FY2019 Budget Recommendation																																					
Action: Expand and clarify the scope of trust fund eligible activities: rental and ownership FY19																																					
Housing Director																																					
When? Specific action steps?																																					
Strategy 2.1.2: Provide additional County affordable housing units																																					
Action: Identify land for development FY20																																					
Housing Director																																					
When?																																					
Action: Create financial packages FY20-FY21																																					
Housing Director																																					
When? Specific action steps?																																					
Action: Identify Partner Options FY20-FY21																																					
Housing Director																																					
When? Specific action steps?																																					
Performance Measure: Number of affordable housing units owned by the County																																					
Performance Measure: Percent occupancy of affordable housing units owned by the County																																					
Performance Measure: Percent of available vouchers used by County residents																																					
Strategy 2.1.3: Increase production and flexibility of Happy Roofs and down payment assistance programs																																					
Action: Review and update policies and procedures FY19																																					
Housing Director																																					
When? Add bringing to any Boards for approval?																																					
Action: Coordinate with existing programs for recruitment FY20																																					
Housing Director																																					
Not sure what this means - can action be more specific?																																					
Strategy 2.1.4: Maintain and enhance existing affordable housing stock																																					
Action: Apply for external funding for rehabilitation of existing units FY18-FY22																																					
Housing Director																																					
When? Or is it intended to be ongoing? Anything specific?																																					
Action: Obtain County funds for street, curb, and gutter enhancements FY18-FY22																																					
Housing Director																																					
When? Specific action steps?																																					
Action: Develop housing capital improvement plan FY18-FY22																																					
Housing Director																																					
When? Specific action steps?																																					
Action: Complete CIP and identify funding sources FY19																																					
Housing Director																																					
When? Specific action steps?																																					
Action: Apply for HUD Rental Housing Demonstration (RAD) funding FY20																																					
Housing Director																																					
When? Specific action steps?																																					
Objective 2.2: Address Threats Associated With Climate Change																																					
Strategy 2.2.1: Develop additional backup water supply																																					
Action: Review current plans, ordinances, etc. (from use and others)																																					
Who is responsible? When? Specific action steps?																																					

Santa Fe County Draft Strategic Plan
May 2018

Completed																							
Responsible Parties				Notes																			
				FY2019				FY2020				FY2021				FY2022				FY2023			
				Q4				Q1				Q2				Q3				Q4			
<div><div>Action: County Manager and BCC meet with Mayor and City Council to review current state</div><div>Action: Build internal team of SFC experts (utilities, sustainability, finance, planning, legal, etc.)</div><div>Action: Include regional partners (City, mutual domesticies, BDD, PBRWS, EAWSD, large well water users)</div><div>Action: Determine and locate resources needed</div><div>Action: Create plan</div><div>Action: Secure water supply with water rights, infrastructure and wet water with regional partners</div><div>Action: Evaluate domestic well use and metering program FY18,FY19, FY20</div><div>See also: Objective 1.1, Enhance Fire Protection Programs</div><div>Strategy 2.2.2: Reduce greenhouse gas emissions from county operations</div><div>Action: Adopt fleet management policy encouraging use of fuel efficient and electric vehicles</div><div>Action: Contract for investment grade audit of major County facilities</div><div>Action: Install solar generation on Nancy Rodriguez Eldorado Community Center (\$150,000/year capital)</div><div>Action: Provide and encourage alternative transportation</div><div>Action: Establish sustainability healthy building guidelines for all new county buildings FY19</div><div>Action: Consider return on capital investment in sustainability in comparison to life cycle cost of buildings</div><div>Action: Support improvements to state renewable portfolio standards</div><div>Performance Measure: Percentage of County vehicles that are electric</div><div>Performance Measure: Number of riders using Regional Transit blue bus</div><div>Objective 2.3: Ensure County's Long-Term Financial Stability</div><div>Strategy 2.3.1: Amend Sustainable Land Development Code/lodger's tax ordinance to regulate short-term rentals</div><div>Action: Form working Group of Lodger's Tax Advisory Board, Fire, Legal, Sustainability, Finance and Assessor</div><div>Action: Outreach and inform public of importance</div><div>Action: Identify location and number of short-term rentals in unincorporated area FY19</div><div>Action: Collect rules from other jurisdictions FY19</div><div>Action: Create and adopt appropriately-targeted code changes FY19</div><div>See also Strategy 2.1.4. Maintain and enhance existing affordable housing stock</div></div> <div>Utilities Director</div> <div>When?</div>																							
				Utilities Director				Not a very specific action step. Who responsible? When? What will the team do?															
				Utilities Director				Who is responsible? When? Specific action steps?															
				Utilities Director				Who is responsible? When? Specific action steps?															
				Utilities Director				Who is responsible? When? Specific action steps?															
				Utilities Director				Who is responsible? When? Specific action steps?															
				Utilities Director				Who is responsible? When? Specific action steps?															
				Utilities Director				Who is responsible? When? Specific action steps?															

CHAPTER XXV WATER

25-1	General Regulations
25-2	Comprehensive Water Conservation Requirements
25-3	Water Waste
25-4	Santa Fe Municipal Water System
25-5	Water Emergency Management Plan
25-6	Safe Drinking Water and Source-Water Protection
25-7	Water Rights Acquisition Fund
25-8	Voluntary River Conservation Fund
25-9	City Water Budget
25-10	City Water Bank
25-11	Water Conservation Credit Program
25-12	Water Rights Transfer Program
25-13	Santa Fe River Target Flow
Exhibit A	Rules and Regulations—Water Service
Exhibit B	Water Service Rate Schedules
Exhibit C	Emergency Water Regulations "Water Warning—Orange" Implementation Stage
Exhibit D	Emergency Water Regulations "Water Warning—Red" Implementation Stage

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25-5 WATER EMERGENCY MANAGEMENT PLAN.

Editor's Note: Prior ordinance history includes portions of Ordinance Nos. 1996-16, 1996-20, 2000-30, 2000-40, 2002-17, 2003-12, 2005-2.

25-5.1 Short Title.

This section may be cited as the Water Emergency Management Plan Ordinance. (Ord. #2006-53, §19)

25-5.2 Purpose.

The purpose of this section is to provide the city the means to implement measures for controlling water use in response to water-system-related emergencies or water emergencies due to catastrophic events or prolonged drought that may disrupt systems operations or the sources of water supply. (Ord. #2006-53, §20)

25-5.3 Policy.

Because of the conditions prevailing in the City of Santa Fe, the general welfare requires that the city maximize the beneficial use of its available water resources to the extent to which it is capable, and that the conservation of water is to be practiced with a view to the reasonable and beneficial use thereof and to avoid waste or unreasonable use, in the interest of the citizens of the City of Santa Fe and for the public health, safety and welfare. (Ord. #2006-53, §22)

25-5.4 Declaration of Water Emergency.

The city manager is authorized to determine and declare that a water emergency exists in any and/or all parts of the City or County of Santa Fe that is served by the city water system if any of the following occur:

A. The water division director reports the occurrence of any of the following:

- (1) A general water supply shortage due to increased demand or limited supply;
- (2) Distribution or storage facilities of the city water system are inadequate to meet demand or minimum quality standards; or
- (3) A disruption of the supply, storage, or distribution facilities of the city water or wastewater systems.

B. An unforeseeable disaster or water emergency such as an earthquake, or other catastrophic event affecting the Santa Fe or Rio Grande river watershed, or groundwater supply, or other major disruption in the water supply.

C. A foreseeable water emergency, such as extended drought conditions.
(Ord. #2006-53, §24)

25-5.5 Water Emergency Management Plan.

There is established a city of Santa Fe water emergency management plan that shall apply to all water customers of the city water system whether located within the city limits or not and to all private well users located within the city limits.

A. *Regulations, Rules and Conditions.* Upon the determination that a water emergency exists, the city manager is authorized to promulgate such regulations, rules and conditions relative to the time of using water, the purpose or purposes for which it may be used, and such other necessary limitations as will, in the city manager's opinion, relieve the water shortage in any such section or sections of the water service area.

B. *Water Emergency Implementation Stages.* In addition to the regulations, rules and conditions set forth in subsection 25-5.5A SFCC 1987, the city adopts the following water emergency implementation stages. The water use restrictions and fines of each stage apply to all higher stages unless the higher stage has a more stringent requirement. At no time shall water be wasted or used unreasonably.

(1) "Water Warning - Orange" implementation stage is incorporated into Chapter XXV SFCC 1987 as Exhibit "C"; and

(2) "Water Crisis - Red" implementation stage is incorporated into Chapter XXV SFCC 1987 as Exhibit "D".

(Ord. #2006-53, §§ 26, 44, 45; Ord. #2011-38, §§ 1, 2)

Editor's Note: Exhibit C and D, referred to herein, may be found at the end of this chapter.

25-5.6 Implementation of Water Emergency Management Plan.

A. Upon the city manager's determination and declaration that a water emergency exists as set forth in subsection 25-5.4 SFCC 1987, the city manager shall determine which provisions of the water emergency management plan are necessary to implement in order to protect the public health, safety and welfare and to prudently plan and supply water to the city water system's customers.

B. Upon the city manager's determination that implementation of the water emergency plan is necessary, the city manager is authorized and directed to implement the provisions of the water emergency management plan, as follows:

(1) The city manager may implement the promulgation of rules, regulations and other conditions relative to the time of using water, the purpose or purposes for which it may be used, and such other necessary limitations as will, in the city manager's opinion, relieve the water shortage in any such section or sections of the water service area; and

(2) The city manager is authorized to implement the "Water Warning-Orange" water emergency implementation stage as shown on Exhibit "C" or the "Water Crisis - Red" water emergency implementation stage as shown on Exhibit "D" at the end of this chapter;

C. If the severity of a water emergency lessens, the city manager may, upon recommendation of the water division director, rescind or lower the water emergency implementation stage.

D. Depending upon the nature of the water emergency in order to protect the health, safety and welfare of the citizen's of Santa Fe and to protect public and private property, the

governing body may upon a majority vote of those present adopt temporary water rate surcharges above those rates set forth in Exhibit B of this chapter.
(Ord. #2006-53, §28)

Editor's Note: Exhibit B, C and D referred to herein, may be found at the end of this chapter.

25-5.7 Water Emergency Management Plan Applications.

A. The water division director shall provide data, comparing the operational water system supply to the operational water system demand, to the city manager by April 15 of each year or as necessary to determine the appropriate water management plan.

B. If the operational water system supply as determined by the water division director's sole discretion, equals between eighty percent (80%) and ninety-nine percent (99%) of operational water system demand, the city manager may declare a "Water Warning - Orange" water emergency implementation stage. If the operational water system supply as determined by the water division director's sole discretion, is less than eighty percent (80%) of operational water system demand, the city manager may declare a "Water Crisis - Red" water emergency implementation stage.

C. For purposes of determining the appropriate water emergency implementation stage, operational water system supply is defined as the sum of the following sources of supply according to the administrative procedures established by resolution of the governing body:

- (1) Canyon Road treatment plant;
- (2) City wells;
- (3) Buckman wells; and
- (4) Buckman direct diversion treatment plant.

D. For the purposes of determining the appropriate water emergency implementation stage, the operational water system demand shall be determined according to the administrative procedures established by resolution of the governing body and in a manner consistent with the Long Range Water Supply Program upon its adoption.

E. The administrative procedures for determining the operational water system supply and demand shall be available at the city's water division.
(Ord. #2006-53, §30)

25-5.8 Announcement and Publication of Water Emergency Management Plan.

Upon the implementation of the water emergency management plan as set forth in subsection 25-5.6 SFCC 1987, the city shall give public notice by public announcement and by publishing a notice giving the extent, terms and conditions respecting the use and consumption of water a minimum of once a day for three (3) consecutive days in a daily newspaper of general circulation in Santa Fe. The provisions of the water emergency management plan to be implemented shall become effective immediately upon public announcement. Upon such public announcement and publication of notice, proper notice shall be deemed to have been given to each customer of the city water system or other party affected by the water emergency management plan. (Ord. #2006-53, §32)

25-5.9 Reserved.

Editor's Note: Former subsection 25-5.9, Penalty, previously codified herein and containing portions of Ordinance Nos. 1996-16, 1996-20 and 2000-30, was repealed in its entirety by Ordinance No. 2006-53, §33.

25-5.10 Reserved.

Editor's Note: Former subsection 25-5.10, Severability, previously codified herein and containing portions of Ordinance Nos. 1996-16, 1996-20 and 2000-30, was repealed in its entirety by Ordinance No. 2006-53, §34.

25-5.11 Reserved.

Editor's Note: Former subsection 25-5.11, Emergency Water Regulations; Publication of Terms of Water Use, previously codified herein and containing portions of Ordinance Nos. 1996-16, 1996-20 and 2000-30, was repealed in its entirety by Ordinance No. 2006-53, §35.

25-5.12 Reserved.

Editor's Note: Former subsections 25-5.12 and 25-5.14, previously codified herein and containing portions of Ordinance Nos. 1996-16, 1996-20 and 2000-30 were repealed in their entirety by Ordinance No. 2003-25, §§44 and 45.

25-5.13 Regulation of Domestic Wells.

All domestic wells within the jurisdiction of the city of Santa Fe shall be governed by this section as authorized by §§3-53-1 and 3-53-2 NMSA 1978. (Ord. #1996-20, §13; Ord. #2000-30, §13)

25-5.14 Reserved.

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EXHIBIT C "WATER WARNING – ORANGE" IMPLEMENTATION STAGE

CITY OF SANTA FE EMERGENCY WATER REGULATIONS "WATER WARNING – ORANGE" IMPLEMENTATION STAGE EXHIBIT C* (Subsection 25-5.5)

***Editor's Note:** Former Exhibit C, Water Emergency Plan Stage 2, Implementation Plan, previously codified herein, adopted May 29, 1996 and amended June 13, 1996, July 31, 1996, September 11, 1996, June 28, 2000, April 10, 2002, May 28, 2003 and February 9, 2005, was repealed in its entirety August 28, 2006 by Ordinance No. 2006-53, §44.

Adopted: August 28, 2006 (effective January 1, 2007)
Amended November 30, 2011 by Ord. No. 2011-38

A. Landscape Restrictions.

(1) Any requirement to plant new landscaping under Chapter 14 SFCC 1987 associated with new construction shall be held in abeyance until all water emergency management plans are rescinded. The property owner or developer shall post a bond sufficient to cover the costs of installing the required landscaping.

(2) Except as set forth in paragraph (4) below, the planting of cool-season grass is prohibited. Violation of this provision shall be subject to a \$500 administrative fee as set forth in subsection 25-1.4 SFCC 1987. Subsequent watering of cool-season grass with potable water shall be subject to additional fines.

(3) The planting of all other plant materials is strongly discouraged. New plantings shall comply with the current irrigation restrictions.

(4) New turf areas in public parks may be installed as long as the overall total square footage of turf in public parks does not increase from that in existence at the time of adoption of this ordinance. Existing turf areas in public parks may be renovated by sod or seeding.

B. Irrigation Notices. All plant nurseries or landscape professionals or community gardens shall provide their customers at the time of sale or service contract, literature, the text of which is provided by the city, indicating that the city is under twice per week watering restrictions, that the new plantings shall comply with those restrictions, and that violations are subject to administrative fee assessments.

C. Irrigation Restrictions.

(1) Except as set forth in paragraph (2) below, outdoor irrigation using potable water shall comply with the following:

(a) Odd-numbered addresses shall irrigate only on Tuesdays and Saturdays. Even-numbered addresses shall irrigate only on Wednesdays and Sundays;

(b) For a location lacking an identifiable odd or even-numbered address, the owner or managing agent shall select an odd-even schedule to which it chooses to adhere provided the city water division is so notified; and

(c) A large irrigation user may designate a portion of its landscape area as "odd" and a portion as "even" if active use of the landscaping and/or water pressure limitations constrain the owner's ability to irrigate the entire landscaped area in either an odd or even day provided the city water division is so notified.

(2) The following exemptions apply:

(a) Plants being irrigated for retail or wholesale sale are exempt;

(b) Licensed landscape maintenance and contracting companies doing manual watering may apply to the city's water conservation office for an exemption; however, they shall not manually irrigate their clients' landscaping more than two (2) days a week. For those customers of landscape companies that have automatic irrigation controllers, the odd-even address watering days and times shall be complied with; and

(c) Public parks, public school athletic fields and public roadside landscapes. This provision is adopted in order to serve community needs for active and passive recreation deemed essential to the quality of life for persons of all ages and to protect tax paid investments in landscaped facilities. Maximum irrigation for turf and woody plant areas shall be based upon evapotranspiration (ET) replacement to maintain the health and vigor of the plants as follows:

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
ET (in inches)	0.70	1.55	2.80	4.25	5.05	4.50	3.00	1.65	0.50	24.00

However, the city will use the information received from its weather stations to determine optimal watering levels which may be less than those listed in the chart above. Woody plant materials in roadside landscapes may be irrigated once a week. Roadside landscapes shall mean those located within the public right-of-way completed as part of a publicly funded project and maintained by the city. Public parks, public school athletic fields and roadside landscapes shall be

reviewed and retrofitted to incorporate the most efficient available technology in irrigation and xeric plant selection.

D. Swimming Pool and Spa Restrictions. One initial filling is allowed for swimming pools and spas. This includes indoor or outdoor facilities. Kiddy pools less than 12 inches in depth and five feet in diameter are exempt from this provision.

E. Posting of Water Shortage Bulletin. Excluding residential facilities, owners of restrooms, showers, and locker facilities shall post a city-provided 8.5 by 11 inch water shortage announcement in the restroom, shower, and locker room areas. This provision applies to all private, public, governmental, and commercial establishments. In addition to restroom signs, all indoor commercial establishments shall post the same announcement in a location clearly visible to their customers.

F. Santa Fe River Target Flows. Target flows to the Santa Fe River may be suspended.

EXHIBIT D "WATER EMERGENCY – RED" IMPLEMENTATION STAGE

CITY OF SANTA FE EMERGENCY WATER REGULATIONS "WATER EMERGENCY – RED" IMPLEMENTATION STAGE EXHIBIT D* (Subsection 25-5.5)

***Editor's Note:** Former Exhibit D, Emergency Water Regulations Water Emergency Management Plan Stage 3 Implementation Plan, previously codified herein and amended September 13, 2000, April 10, 2002 and May 28, 2003, was repealed in its entirety August 28, 2006 by Ordinance No. 2006-53. §46.

Adopted: August 28, 2006 (effective January 1, 2007)

Amended: November 30, 2011 by Ord. No. 2011-38

A. Landscaping Restrictions. The planting of all plant materials is prohibited.

B. Irrigation Restrictions.

(1) All outdoor irrigation using potable water is prohibited except as noted below.

(2) The following exemptions apply:

(a) Plant materials classified to be rare, exceptionally valuable or essential to the well being of the public at large or rare animals may be irrigated twice per month. The watering shall occur on the first and third Tuesdays of the month.

(b) Irrigation of plants for retail or wholesale shall be reduced in volume by an amount determined through approval of the "Water Emergency — Red" implementation stage by the governing body.

(c) Irrigation for public parks, public school athletic fields, and roadside landscapes shall reduce irrigation permitted in Section B.(2)(c) of Exhibit C, Chapter XXV SFCC 1987 by 35%.

C. Swimming Pool and Spa Restrictions. The filling or refilling of all swimming pools or spas is prohibited except where this use is storage for a water supply. The operation of any fountain or similar water feature is prohibited except for short periods of time to prevent damage.

D. Vehicle Washing Restrictions.

(1) All vehicle washing at residences, commercial car sale lots and other commercial and governmental entities is prohibited.

(2) The use of water by all types of commercial car washes or commercial vehicle service stations and not in the immediate interest of the public health, safety and welfare shall be reduced in volume by an amount determined through approval of the "Water Emergency — Red" implementation stage by the governing body.

(3) Such washings are exempt from these regulations where the health, safety and welfare of the public is contingent upon frequent vehicle cleanings such as refuse collection trucks and vehicles used to transport food and perishables.

E. Commercial Use. The use of water for commercial, manufacturing or processing purposes shall be reduced in volume by an amount determined through approval of the "Water Emergency — Red" implementation stage by the governing body.

F. Sales of Potable Water. All sales of potable water outside of the water service area shall be discontinued, with the exception of sales previously approved by the governing body. Water shall not be dispensed at the potable water fill station.

G. Santa Fe River Target Flows. Target flows to the Santa Fe River shall be suspended.

CHAPTER XXV WATER

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