STATE OF COLORADO

Colorado Water Conservation Board
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TO: Colorado Water Conservation Board Members

FROM: Linda J. Bassi, Chief
Kaylea White
Stream and Lake Protection Section

DATE: September 17, 2012

SUBJECT: **Agenda Item No. 14, September 27-28, 2012 Board Meeting Stream and Lake Protection Section – Proposed Water Rights Acquisition on the Alamosa River**

Introduction

The Alamosa Riverkeepers ("ARK") has offered the CWCB the opportunity to acquire 0.5 cfs of water from Gilbert Lucero's Valdez Ditch Priority 9 water right on the Alamosa River near the town of Capulin in Conejos County, Colorado, Water Division 3. This proposed acquisition is the second water right donated to the CWCB by the ARK as part of the larger Alamosa River Instream Flow Project ("Alamosa ISF Project") to restore flows and replace natural resources damaged by mining operations at the Summitville Mine in the upper Alamosa River watershed.

The CWCB has already accepted two donations in furtherance of the Alamosa ISF Project. In May 2010, the Board accepted from ARK a donation of 2.5 cfs in the Gabino Gallegos Ditch to be used in the Alamosa ISF Project. The CWCB also accepted donation of 2,000 af of storage space in Terrace Reservoir from the Terrace Irrigation Company to allow acquired water rights to be stored and released for instream flow ("ISF") use by the Board to increase stream flows during the late summer through early winter. Terrace Reservoir is located on the Alamosa River upstream from the Valdez Ditch headgate. With this water right and additional water acquisitions, volumes are anticipated to reach the goal of 2,000 acre-feet of water stored for ISF use to be released at rates up to 10 cfs. A map of the area and an offer letter from ARK are attached.

Staff Recommendation

Pursuant to ISF Rule 6b., the CWCB's consideration of this proposal at this meeting will initiate the 120-day period for CWCB review. **No formal action is required at this time.** The initial presentation of this proposal provides an opportunity to the CWCB and the public to identify questions or concerns that Staff or the ARK will address at this or a subsequent meeting.

Brief History

In 1984, Summitville Consolidated Mining Corporation began construction of an open pit gold mine near the headwaters of the Alamosa River. Although this site had been mined for over 100

years, the new owners utilized a cyanide leaching technology to extract gold from the ore. Shortly after it became operational, there were problems with accidental releases of contaminants from the mine. The acid and metal drainage ultimately resulted in a massive fish kill affecting 53 miles of the Alamosa River. The operator abandoned the mine site in December 1992 and filed for bankruptcy. The EPA Emergency Response Branch assumed responsibility, and the Summitville site was added to the National Priorities List of Superfund sites on May 31, 1994. The United States and Colorado initiated litigation under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) to recover remediation for the Summitville site.

From 1992 to 2001, EPA and CDPHE completed several projects to reduce acid mine drainage from the site, and by 2005, site-wide reclamation and contaminant source collection structures were completed. Remediation and reclamation work is still underway at the mine. Summitville Superfund Site received up to $25 million in new funding through the American Recovery and Reinvestment Act of 2009 to construct a new on-site water treatment plant. The treatment plant was completed and dedicated in August 2011, treating up to 1,600 gpm.

In addition to the remediation efforts at the mine, stream channel restoration projects have been completed for 2.5 miles of the River in the reach between Gunbarrel Road and County Road 10. Restoration projects are planned for an additional 2.5 miles of stream in the same area. These restoration projects are designed to improve aquatic habitat and riparian areas along the river, with the expectation that once stream flows are stabilized, the River will be able to support a fishery.

The *Alamosa River Watershed Restoration Master Plan and Environmental Assessment* (Master Plan) was developed to ensure that funds recovered from a litigation settlement would be used in a manner that "comprehensively addresses the restoration needs of the Alamosa River watershed and is implemented in a manner that is fully and consistently integrated into existing and future Alamosa River projects and the Summitville CERCLA cleanup remedy." The Master Plan Final Report, issued by CWCB in 2005, summarized existing environmental conditions in the watershed, identified problems, and developed specific restoration solutions designed to bring about a healthier Alamosa River watershed. The Alamosa ISF Project was one of the highest ranking projects identified by the Master Plan, and was included in the Preferred Restoration Alternative.

The Alamosa ISF Project implements several recommendations from the Master Plan and is part of the larger effort to restore and replace damaged resources in the Alamosa River watershed. The Alamosa ISF Project includes:

(1) increasing the Terrace Reservoir spillway capacity to remove a storage restriction;

(2) acquiring senior irrigation water rights on the Alamosa River from willing Sellers;

(3) transferring the irrigation water rights to CWCB for storage in Terrace Reservoir; and,

(4) operating Terrace Reservoir to store and release the acquired water for ISF use by the CWCB in the Alamosa River between Terrace Reservoir and County Road 10.

Once operational, the Alamosa ISF Project is expected to improve the magnitude and duration of surface flows in the river, thereby improving environmental, water resource and recreation values while restoring and replacing resources damaged by operations at the Summitville Mine.

The Alamosa ISF Project is a two-phased, community-based effort spearheaded by the ARK and Terrace Irrigation Company. Phase I includes purchasing senior irrigation water rights,

transferring the water rights to the CWCB, changing the use in water court to ISF use by CWCB, and designing the spillway improvements to Terrace Reservoir. Phase II involves reconstructing the Terrace Reservoir spillway, currently underway, storing the acquired water rights in the reservoir, and releasing the water rights to restore flows in the Alamosa River during the late summer, fall, and early winter months. This proposal helps advance both phases.

The Board's Water Acquisition Procedures

Rule 6 of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program ("ISF Rules") sets forth the Board's procedures for acquiring water for ISF use. Section 37-92-102(3), C.R.S. (2009) provides 120 days for the Board to determine what terms and conditions it will accept in an acquisition agreement for water, water rights, or interests in water to preserve or improve the natural environment. ISF Rule 6 requires a minimum of two Board meetings to allow for public input prior to taking final action on a proposed acquisition. The Board's initial consideration of this proposal at this Board meeting initiates the 120-day time period for the Board to consider the terms and conditions of the proposed acquisition. Final action on the proposal could occur at the November 2012 Board meeting. ISF Rule 6m.(4) provides that any person may request the Board to hold a hearing on the proposed acquisition, and that such a request must be filed within twenty days of this Board meeting.

ISF Rule 6e. requires the Board to evaluate the appropriateness of the acquisition and determine how best to utilize the acquired water to preserve or improve the natural environment. The Rules list several factors the Board may consider in its evaluation of the acquisition, which factors are addressed in this memo.

Pursuant to statute, Staff has requested recommendations from the Colorado Division of Wildlife ("CDOW"), the Division of Parks and Outdoor Recreation, the U.S. Department of Agriculture and the U.S. Department of Interior. Pursuant to ISF Rule 6m.(1), Staff has provided notice of the proposed acquisition to all persons included on the appropriate ISF Subscription Mailing Lists and provided notice to the State Engineer's Substitute Supply Plan Notification List. The CDOW's recommendation letter is attached as Exhibit B.

1. Water Right Proposed for Acquisition

The water right proposed for this acquisition is Mr. Lucero's 0.5 cfs of the Valdez Ditch, Priority 9, which diverts from the Alamosa River, downstream from Terrace Reservoir, approximately 5 miles northwest of the town of Capulin in Conejos County. Priority 9 of the Valdez Ditch was decreed for irrigation by the Conejos County District Court on July 11, 1888, in the amount of 14 cfs absolute, with an appropriation date of April 10, 1870 (see decree attached as Exhibit E). The proposed Acquisition Agreement is attached as Exhibit C.

The Valdez Ditch diverts from the south side of the Alamosa River approximately five miles downstream from Terrace Reservoir. The ditch flows in a southerly direction to irrigate approximately 17 acres of alfalfa and hay.

2. Proposed Method of Acquisition

The Valle Del Sol Community Center, a Colorado non-profit corporation acting on behalf of ARK has entered into a Purchase and Sale Agreement with the owner of the subject water right ("the Seller). The Seller has executed a Dry-Up Covenant for the lands historically irrigated by the subject water right. The Valle Del Sol / ARK intend to donate the purchased water right to CWCB.

In addition to CWCB's use of Terrace Reservoir to release stored water for ISF purposes, ARK and CWCB are considering options for using the donated right by bypassing the acquired right at the headgate for ISF use until the reservoir is capable of storing the acquired water. During the pendency of water court approval for ISF use of the water right, CWCB and ARK may explore a temporary use of the water for ISF via a substitute water supply plan.

3. Reaches of Stream Proposed for Use of the Acquired Right

The reach of stream proposed for use of the acquired Valdez Ditch water right extends from the outlet of Terrace Reservoir, downstream approximately 16 miles, to the bridge at County Road 10, which includes the restored section of stream channel between Gunbarrel Road and County Road 10. Alternatively, the water right may be bypassed at the headgate for instream use from the headgate downstream approximately 6 miles to County Road 10. The Alamosa River is currently dry most years downstream from Gunbarrel Road (see attached map) during late summer until spring runoff.

4. Natural Flow Regime

The Alamosa River watershed is approximately 148 square miles, and ranges in elevation from over 13,000 feet to about 7,600 feet. The headwaters are located near the Continental Divide, and the river terminates at ditch headgates just east of Highway 285. Stream flow in the Alamosa River is derived primarily from snow melt and local precipitation, with peak flows occurring in June. Surface water in the Alamosa River rarely reaches the Rio Grande, located down valley approximately 15 miles east of County Road 10. Terrace Reservoir is the only mainstem storage facility on the Alamosa River.

In the segment of the Alamosa River downstream from Terrace Reservoir, the river is confined by steep valley walls. Peak flow typically occurs in June, and drops off quickly in July and August of most years. Approximately 2-3 miles downstream from the reservoir, the valley widens, and irrigation diversions pull water from the River. Senior decreed water rights in the reach of the River between Terrace Reservoir and the Town of Capulin total nearly 90 cfs, and significantly reduce stream flows.

5. Existing ISF Water Rights

The CWCB does not currently hold ISF water rights on the Alamosa River downstream from Terrace Reservoir. CWCB holds an ISF water right on the Alamosa River located upstream of the reservoir between Treasure Creek/Cascade Creek and the confluence of Wightman Fork (Case No. 3-82W209), as well as an ISF right located in the adjacent drainage to the south, on Hot Creek (Case No. 3-77W3808), but those water rights will not be affected by this proposal.

6. Existing Natural Environment

The Alamosa River is classified as a large river (between 60-90 feet wide) and habitat surveys indicate the stream environment of the Alamosa River could support a self-sustaining fishery in the future, if current water quality and wintertime water quantity continue to improve. In the past, the Alamosa River in this area supported a healthy fishery. Local residents have reported that prior to 1990, the river near Capulin was a popular place for weekend picnics and recreational fishing.

The CDOW has conducted surveys on the Alamosa River and found the fishery has been severely impacted by metals and acid drainage from the Summitville Mine site, and extremely low wintertime stream flows. Although the natural environment was severely damaged, recent reports by the CDPHE indicate that aquatic life is returning in the lower watershed, and

operation of the new, high capacity treatment plant is expected to achieve the water quality standards and aquatic life goals established for the Alamosa River (CDPHE, March 2009).

7. Proposed Use of the Water Right

This proposed acquisition will require a new point of diversion and new type and method of use for 0.5 cfs of the Valdez water right. The new point of diversion is at Terrace Reservoir, the new type of use is ISF and the new method of use is storage rather than simply direct flow diversion.

This proposal contemplates storage in Terrace Reservoir of up to approximately 145 acre-feet of water. This amount represents the average annual diversions attributable to 0.5 cfs of the Valdez Ditch, Priority 9 water right. Storage will begin in March, when the Valdez right comes into priority. Stored water may be released from Terrace Reservoir to the Alamosa River during late summer, fall, and early winter to maintain flows in the river downstream to County Road 10 (the restoration reach). The amount of water released for ISF use would include the amount historically diverted by the ditch as well as the historical consumptive use amount. The Master Plan has identified a target flow of 10 cfs for the proposed ISF reach based upon interviews with water administration officials and their experience with water deliveries from Terrace Reservoir. This initial target flow is expected to maintain flows through a longer reach of the Alamosa River than historically available. Staff is working with the CPW to establish what amounts are needed to preserve and improve the natural environment.

ISF releases from Terrace Reservoir would be used to preserve and improve the natural environment by providing additional surface stream flows. It is expected that the ISF releases will establish more sustainable stream flows in the Alamosa River, replenish the alluvial aquifer and extend surface flows further downstream to County Road 10. Downstream of County Road 10, dominion and control of the water would be relinquished to other users.

8. Proposed Season of Use

Storage in Terrace Reservoir will begin in March, and continue as long as the Valdez right is in priority. Releases of stored water may be constrained by weather and icing issues, but could generally occur July through December. The Acquisition Agreement and the Terrace Reservoir Storage Agreement both provide for an annual planning meeting to discuss release rates and schedules.

9. Stacking Evaluation

The CWCB does not currently hold ISF water rights for the Alamosa River downstream from Terrace Reservoir; therefore, no stacking evaluation is needed for existing ISF water rights. However, as CWCB acquires and adjudicates water rights for ISF use on the Alamosa River in this area, the water rights will be "stacked," as they are separate water rights to be used at the same time in the same reach of stream.

10. Historical Use and Historical Return Flows

Ken Knox of Knox Water Consultants, LLC has evaluated the historical use and historical return flows of the Valdez Ditch water right. (See the KWC Report attached as Exhibit F).

The KWC report evaluated the historical use and historical return flows associated with the 0.5 cfs of the Valdez, Priority 9 water right. The subject water right has been used to flood irrigate approximately 17 acres of alfalfa and hay. Diversions begin in March and extend into November. Records indicate the Valdez Ditch is able to provide a full irrigation water supply in most years. The KWC report indicates average annual diversions for the 0.5 cfs of Mr. Lucero's

Valdez Ditch right amounts to approximately 145 acre-feet, and a historical consumptive use of approximately 27 acre-feet.

The KWC report evaluated return flows from the use of Mr. Lucero's 0.5 cfs Valdez Ditch right, and found no evidence of excess surface water runoff from the irrigated fields. The report indicates that the land in this area of the valley is relatively flat, and KWC concluded that any irrigation water not consumed by the crop percolates through the soil and accrues to the unconfined aquifer, not to the surface water. Therefore, maintenance of surface return flows should not be required by this change case because there were no surface return flows historically. The location and amount of groundwater return flows will be maintained by using the entire diversion amount for ISF, allowing the historic return flow amounts to percolate near the same location as historically occurred. The timing of the groundwater return flows may change slightly from a historical irrigation use in spring to mid-summer to a changed practice of ISF use in late summer to early fall. The slight change in timing should not cause any injury to wells because the changed timing of recharge to the groundwater will be absorbed by the groundwater in storage, which will dissipate the seasonal change in timing. It is possible that the historical groundwater return flows may have reached the Rio Grande, but groundwater return flows that may have eventually accrued to the Rio Grande would likely take many years to decades after application to the irrigated field(s) to reach the river due to the minimal hydraulic gradient, distance and permeability through the geologic materials. The changed use to ISF will provide return flows to the groundwater in the same vicinity and will eventually accrue to the Rio Grande in a similar manner to the former irrigation practice many years to decades after application to ISF. It is highly unlikely that the slight change in seasonal return flow timing will change the timing of return flow accrual to the Rio Grande River.

11. Location of Other Water Rights

There are five large irrigation diversions located between Terrace Reservoir and County Road 10 where this water right will be used for ISF. These five structures include the Terrace Main Canal, El Viego Ditch, Alamosa Creek Canal, and the Gabino Gallegos Ditch, and the Capulin Ditch. See attached map. The senior Capulin Ditch is located approximately 5 miles downstream from the Valdez Ditch, and is decreed for 31.37 cfs.

12. Material Injury to Existing Rights

To prevent material injury to existing water rights, protective terms and conditions will be included in any water court change decree that allows use of this water for ISF purposes. This proposed acquisition will require a new point of diversion and new type and method of use for 0.5 cfs of the Valdez water right. The proposed Terrace Reservoir Storage Agreement contains a provision limiting diversion of the water right into storage to times when the right is in priority and there is physical water available at the historical headgate (not counting any simultaneous ISF releases).

Water users located both upstream and downstream from the Valdez Ditch would be entitled to protection from potential injury from this change of water right, including potential expansion of use and maintenance of return flows as a result of a water court change of the Valdez water right. The KWC Report evaluated return flows from the historically irrigated lands and concluded that "[d]ue to the rather unique circumstances…natural hydrology of the Alamosa River…there is no apparent evidence the return flows migrate back to the stream and contribute toward fulfilling downstream water rights during periods of time in which they are in priority and could apply

water to a beneficial use." The ISF flow releases will naturally percolate into the stream channel and recharge the unconfined aquifer.

13. Effect on Interstate Compact Issues

Water rights in Water Division 3 are subject to the water delivery obligations of the 1938 Rio Grande Compact. However, in a 1983 decision, the Colorado Supreme Court determined that the compact negotiators did not include the Alamosa River since "practically no water from [La Jara Creek or Alamosa Creek] reaches the Rio Grande except during periods of flooding." *Alamosa-La Jara Water Users Protection Association v. Gould*, 674 P.2d 914, 925-26 (Colo. 1983). The Division 3 Engineer has confirmed that the Valdez Ditch is not subject to the requirements of the Rio Grande Compact. Because use of the acquired water is fully contained on the Alamosa River, Staff believes the proposed acquisition will not impair the State's ability to meet its compact delivery obligations.

14. Effect on Maximum Utilization of Waters of the State

The 0.5 cfs of the Valdez Ditch water right was historically used to irrigate alfalfa and hay. The changed water right will be directly put to beneficial use as an ISF to preserve and improve the natural environment to a reasonable degree. This proposal is an integral first component of the Alamosa ISF Project, which will ultimately provide increased water level in the aquifers, thus contributing to maintaining a more sustainable aquifer and associated base flow condition in the river. The water will be available for use by others downstream of County Road 10, where dominion and control of the water will be relinquished.

15. Availability for Downstream Use

The Alamosa River is a losing stream in the reach downstream from Terrace Reservoir. Most of the surface flow is either diverted for irrigation use or lost through the stream bed to groundwater. Although the proposed acquisition is expected to increase stream flows through a longer reach of stream, the additional stream flows provided by this water acquisition will also percolate into the stream bed of the Alamosa River and accrue to the unconfined aquifer. For that reason, there will be little surface water available for subsequent, downstream use.

16. Administrability

CWCB staff has discussed administration of this proposal with Craig Cotten, the Division Engineer, and the District 21 Water Commissioner. Although there are several large diversion structures within the proposed ISF reach, water officials believe the ISF releases from Terrace Reservoir will be administrable. A state-operated satellite gage, Station ID 8236500, located on the Alamosa River approximately 0.5 mile downstream from Terrace Reservoir will facilitate administration.

17. Potential Benefits of This Proposed Acquisition

This proposed acquisition is just one step of the larger Alamosa ISF Project to restore flows to the Alamosa River. Additional water acquisitions are anticipated in order to bring the ISF storage up to 2,000 acre-feet. The potential benefits of the proposed Alamosa ISF Project are described in detail in the Master Plan and Environmental Assessment, and include:

- Releases of stored water will restore the highly altered hydrologic regime of the Alamosa River which impairs natural functions and values;
- The Project is designed to improve the natural environment that was injured by release of hazardous substances from the Summitville Mine site;

- Existing riparian habitat along the lower Alamosa River will be enhanced and new habitat created due to introduction of more sustained and dependable stream flows and increased ground water levels;
- Improving stream flow characteristics in the lower Alamosa River will improve biological resources, with the goal of eventually recovering a sustainable fishery;
- Increasing the duration of stream flows in the lower Alamosa River should increase alluvial groundwater levels adjacent to the stream; and
- Preservation and improvement of riparian areas, stream restoration, and ISF would benefit waterfowl, sparrows, warblers, raptors, beaver and other species known to inhabit the riparian zone.

Additionally, the CPW determined that this water right acquisition "will potentially increase the amount of time of each year that the Alamosa River has sufficient streamflows to support and maintain a fishery;" that it "will also extend the amount of flowing stream habitat (reach length);" and that "the Valdez Ditch acquisition is an important step towards recovery" of the Alamosa River. CPW's recommendation letter is attached as Exhibit B.

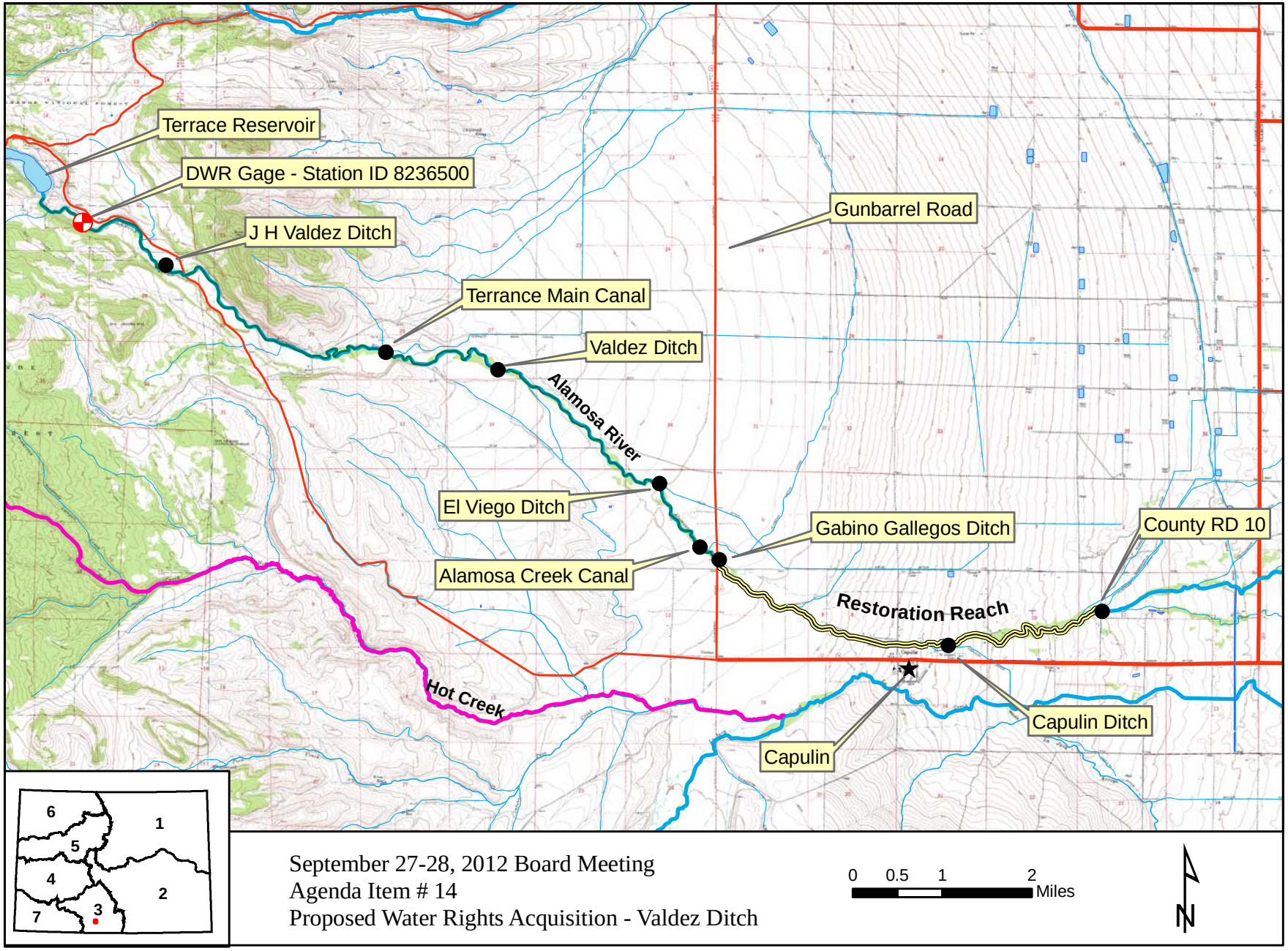
18. Cost to Complete Transaction

CWCB has already demonstrated commitment and has contributed significant sums toward restoration of the Summitville Mine and the Alamosa River. This water right acquisition was contemplated in Phase I of the Alamosa ISF Project, which was funded in part by a grant from the Summitville Natural Resource Damage (NRD) account. Phase II of the Alamosa ISF Project, which includes rehabilitation of the Terrace Reservoir spillway, has been funded and construction should be completed by the end of this year.

Potential CWCB costs could include analysis of the water right acquisition proposal, as well as costs associated with preparing, filing, and prosecuting a change of water right application for the acquired water right. CWCB may also incur costs associated with monitoring any bypasses at the headgate and ISF releases from Terrace Reservoir. Additional outside funding or partnership opportunities may be available.

The CWCB has historically supported the Alamosa River watershed restoration project. In addition to partial funding and management of the $250,000 Master Plan, the Board provided assistance to ARK in the amount of $100,000 in matching funds from the Severance Tax Operational Account to add to NRD monies for the Alamosa ISF Project. By accepting this water donation, CWCB can continue to support this important restoration project and maximize benefits from its previous expenditures.

Attachments:
A – ARK offer letter
B – CPW recommendation letter
C – Draft acquisition agreement
D – Storage agreement
E – Original decree
F – KWC Engineering Report



September 27-28, 2012 Board Meeting
Agenda Item # 14
Proposed Water Rights Acquisition - Valdez Ditch

WATERKEEPER® ALLIANCE
MEMBER

Alamosa **RIVERKEEPERS®**

P.O. Box 223, Capulin, CO 81124

Mr. John McClow, Chairman
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

September 13, 2012

Dear Chairman McClow:

Alamosa Riverkeeper's (ARK) mission strives for a clean functional river system which benefits the economic, ecological, and recreational needs of the Alamosa River watershed. ARK has partnered with the Terrace Irrigation Company (TIC) to provide an instream flow for the Alamosa River. Terrace Irrigation Company owns and operates Terrace Reservoir located in Conejos County, Colorado, which derives its water from, and releases water to, the Alamosa River.

Alamosa Riverkeeper is pleased to offer to the Colorado Water Conservation Board (CWCB) .5 cfs decreed to the Valdez Ditch by the District Court in and for Conejos County, in the State of Colorado. ARK requests that CWCB consider the first step towards acceptance of this interest in the Valdez Ditch water right during the Board's September 2012 meeting.

The CWCB, with the leadership of Brian Hyde, sponsored the *Alamosa River Watershed Restoration Master Plan and Environmental Assessment (*Master Plan), which was funded by the Summitville natural resource damage settlement. The $250,000 Master Plan was completed in July, 2005. The Master Plan summarizes current environmental conditions and develops solutions for identified problems that will lead to a healthier watershed. An instream flow was identified as a "tier one" project for the Alamosa River.

The Instream Flow Project benefits the Alamosa River and its hydrology by improving the flow regime of the Alamosa River, enhancing the riparian zones, recharging the underlying aquifer and developing a fishery. Once a dead river, anecdotal stories reported during the summer of 2012 describe fish being caught above and below Terrace Reservoir. Monies from the Summitville natural resource damage settlement and the CWCB are funding this project.

Over the past few years, ARK has worked closely with Linda Bassi, Kaylea White and staff in the Stream and Lake Protection Section to make this offer to you. We look forward to working with CWCB to complete this transaction.

Respectfully,

Cindy Medina

Cindy Medina, Alamosa Riverkeeper

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September 17, 2012

Ms. Linda Bassi
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

SUBJ: Valdez Ditch Acquisition/Donation – Alamosa River

Dear Linda:

The following is Colorado Parks and Wildlife's (CPW) analysis and recommendation regarding the possible acquisition/donation of 0.5 cfs of the Valdez Ditch water right for instream flow purposes on the Alamosa River near the town of Capulin, Colorado.

General Information

The Colorado Water Conservation Board (CWCB) recently asked CPW to evaluate the benefits and possible impacts associated with accepting the proposed donation of the Valdez Ditch water right to the natural environment of the Alamosa River. The CWCB currently does not hold an instream flow water right on the Alamosa River downstream of Terrace Reservoir. The Alamosa River is a tributary of the Rio Grande in Conejos County near Capulin, Colorado (approximately 7 miles south of Alamosa, Colorado).

Biological Survey Data

The former Division of Wildlife conducted field surveys of the fishery resources on the Alamosa River and has found that the fishery is severely impacted by both heavy metals contamination and extremely low streamflows during the winter months. The Alamosa River is classified as a large river (between 60 and 90 feet of bankfull width); habitat surveys have indicated that the Alamosa River could support a self-sustaining fishery if, in the future, current water quality and wintertime streamflows were to improve.

Field Data Collection

The R2CROSS data that we have on file was collected downstream of Terrace Reservoir and upstream of all of the major ditches that divert water from the Alamosa River during the irrigation season. This R2CROSS data indicates that instream flows of 45 cfs during the summer months and 15 cfs during the winter months would be necessary to preserve and improve the natural environment to a reasonable degree. These flow levels have been used as target flows or goals for re-establishment of a fishery in the Alamosa River near Capulin; in the restoration reach, a wintertime flow goal of 10 cfs has been identified in master planning documents for the Alamosa River Restoration Project. However, it is

important to note that these flow recommendations are based on current, pre-restoration physical data collected to date and have not been thoroughly analyzed in light of water availability constraints.

Water Right Donation Analysis

CPW is of the understanding that the 0.5 cfs of the Valdez Ditch that is the subject of the proposed acquisition has been historically used to irrigate approximately 17 acres of land near Capulin. As was the case with previous water right acquisitions to support restoration efforts on the Alamosa River, CPW is supportive of the concept of drying up the irrigated lands and storing the yield (approximately 145 acre-feet) from the Valdez Ditch in Terrace Reservoir for release during the late summer, fall and early winter months to address the historic low flow issues (above and below the Valdez Ditch point of diversion) on the Alamosa River. CPW realizes that this is an incremental process in an effort to meet the target flow levels for the winter months and we are committed to continued work with CWCB staff and the Alamosa River stakeholders into the future. The acquisition of the Vadez Ditch water right, when added to the prior acquisition of the Gabino Gallegos Ditch in 2010, is only a step along the way toward restoration of the Alamosa River fishery.

CPW Recommendation

Based on the above analysis, CPW recommends that the CWCB accept the donation of water rights associated with the Valdez Ditch to preserve and improve the natural environment of the Alamosa River. Accepting this senior water right will potentially increase the amount of time each year that the Alamosa River has sufficient streamflows to support and maintain a fishery. Further, accepting this water and managing it for late summer, fall and early winter streamflow maintenance will also extend the amount of flowing stream habitat (reach length) over what has occurred historically. As stated above, the incremental nature of this restoration project dictates to us the fact that we are not done with the water acquisition activities on the Alamosa River, but the Valdez Ditch acquisition is an important step towards recovery.

If you have any questions regarding this matter, please contact me at 303-291-7260.

Sincerely,

Jay W. Skinner
Water Resources Unit manager
Colorado Parks and Wildlife

CC: John Alves, Southwest Region Senior Aquatic Biologist

DONATION AND ACQUISITION AGREEMENT
(Valdez Water Right)

This Donation and Acquisition Agreement is between the **COLORADO WATER CONSERVATION BOARD** ("CWCB" or "Board"), and the **VALLE DEL SOL COMMUNITY CENTER/ALAMOSA RIVERKEEPERS®**, an unincorporated nonprofit Colorado association ("ARK").

WHEREAS, the Board is authorized by section 37-92-102(3), C.R.S. (2009), to acquire from any person, including any governmental entity, such water, water rights or interests in water as the Board determines may be required for instream flows to preserve or improve the natural environment to a reasonable degree and to take whatever action may be needed to ensure such instream flows remain in the river; and

WHEREAS, under section 37-92-102(3), no person or entity other than the Board "shall be granted a decree adjudicating a right to water or interests in water for instream flows in a stream channel between specific points ... for any purpose whatsoever"; and

WHEREAS, the Alamosa River Watershed Restoration Master Plan and Environmental Assessment, dated July 2005, identifies the need to improve stream flow in the Alamosa River below Terrace Reservoir as part of an overall restoration plan for the Alamosa River, to be funded, in part, by Natural Resources Damages money (NRD); and

WHEREAS, the Board does not currently hold an instream flow right on the Alamosa River downstream from Terrace Reservoir; and

WHEREAS, from time to time, ARK intends to acquire and donate to the CWCB, and the CWCB expects to accept donation of existing decreed water rights that divert from the Alamosa River or its tributaries below Terrace Reservoir to provide instream flows to preserve or improve the natural environment in the Alamosa River below the Terrace Reservoir; and

WHEREAS, ARK has purchased from Gilbert Lucero 0.5 cfs of the 14.0 cfs of water decreed to the Valdez Ditch, with a Stream Priority No. 9 by the Conejos County District Court on July 11, 1888, with an appropriation date of April 10,1870, for irrigation use ("Lucero's Valdez Ditch Right"); and

WHEREAS, the sellers have executed an amended Dry-Up Covenant certifying that the lands associated with the 0.5 cfs will be permanently removed from irrigation following termination of any lease arrangement with ARK; and

WHEREAS, ARK and the Board have also entered into an agreement with Terrace Reservoir Company allowing storage of the Gallegos Ditch Right in Terrace Reservoir (the "Stored Water");

WHEREAS, Terrace Reservoir Company is currently involved in a project to redesign and reconstruct the spillway for Terrace Reservoir, so as to lift the State Engineer's storage restriction; and

WHEREAS, the Board's use of Lucero's Valdez Ditch Right for instream flow purposes will require the storage restriction for Terrace Reservoir to be lifted; and

WHEREAS, the Board intends to accept the donation of Lucero's Valdez Ditch Right from ARK and to file an application with the Division 3 Water Court for a change of use of such water right to allow storage and subsequent instream flow use by the Board to preserve or improve the natural environment to

a reasonable degree in the Alamosa River from the headgate or from the outlet of Terrace Reservoir downstream to the bridge at County Road 10 (the "Instream Flow Reach");

WHEREAS, the Board's use of Lucero's Valdez Ditch Right for instream flow purposes will require Water Court approval of a change in use of Lucero's Valdez Ditch Right; and

WHEREAS, ARK wishes to assist the Board in obtaining judicial approval of the change in use to storage and subsequent instream flow use;

NOW, THEREFORE, in consideration of the mutual and dependent covenants contained herein, the parties agree as follows:

1. Conveyance. Within thirty days of the Effective Date of this Agreement, as described in Paragraph 11 herein, ARK will convey Lucero's Valdez Ditch Right to the Board by Special Warranty Deed in substantially the form as the deed attached hereto as **Exhibit A**. ARK shall record said deed with the Conejos County Clerk and Recorder within ten days of such conveyance, and shall provide a copy of the recorded deed to the Board. ARK will retain the right to lease Lucero's Valdez Ditch Right to the sellers for continued irrigation use until the Board desires to begin using Lucero's Valdez Ditch Right for instream flow purposes.

2. Water Court Proceedings. At such time as deemed appropriate by the Board, the Board shall file an application with the Water Court to change the use for Lucero's Valdez Ditch Right to allow for storage in Terrace Reservoir, and subsequent release for instream flow use exclusively by the Board in the Instream Flow Reach, and/or to allow the bypass of Lucero's Valdez Ditch Right at the headgate for immediate use in the Instream Flow Reach (the "Change Proceeding"). ARK may file a statement of opposition in the Change Proceedings in support of the change application and in order to keep informed of all proceedings in the Change Proceeding. The Board will not enter into stipulations in the Change Proceeding or submit a proposed ruling or decree to the Court without first consulting with and obtaining the approval of ARK, which approval shall not be unreasonably withheld.

3. Assistance. The Board will be responsible for the normal and reasonable costs of the Change Proceeding. ARK shall provide reasonable engineering and other assistance to the Board in the Change Proceeding, providing funding is available.

4. Enforcement. If the Board successfully obtains a decree in the Change Proceeding, the Board commits to use Lucero's Valdez Ditch Right, as changed, for instream flow purposes to preserve or improve the natural environment to a reasonable degree, consistent with the terms of the decree, and to take reasonable steps to enforce those rights for instream flow purposes and protect them from injury. If the Board receives a request to consider injury with mitigation for the portion of the Alamosa River benefited by the change of Lucero's Valdez Ditch Right, the Board shall promptly inform ARK of such request, consult with ARK regarding such request, and not take any action that, in the CWCB's and ARK's reasonable judgment, would impair the benefits to the Alamosa River resulting from ARK's donation to the Board of Lucero's Valdez Ditch Right and its change to instream flow uses. Nothing herein shall diminish the Board's right to exercise its discretion regarding enforcement of instream flow water rights; however, the Board acknowledges that the intended use of Lucero's Valdez Ditch Right is to preserve or improve the natural environment of the Alamosa River to a reasonable degree.

5. Effect of Denial. If the Change Proceeding is unsuccessful for any reason, or if the decree entered therein is conditioned in such a manner as to prevent the purposes of this Agreement from being fulfilled,

then the parties hereto shall consult on future action regarding the Board's use of Lucero's Valdez Ditch Right.

6. Re-Use Right. Pursuant to section 37-92-102(3) and to the water court decree that will implement this Agreement, ARK shall have the right to bring about beneficial use of the historical consumptive use of Lucero's Valdez Ditch Right as fully consumable water at any point downstream from County Road 10 (the "Re-Use Right"), subject to such terms and conditions as the Water Court deems necessary to prevent injury to vested water rights or decreed conditional water rights. ARK shall notify the Division 3 Engineer of any agreement for such beneficial use downstream of the Instream Flow Reach prior to the use. However, given the current hydro-geologic conditions, it is unlikely that the historical consumptive use of water associated with the Valdez Ditch will be maintained as surface flow through the entire Instream Flow Reach and be available for the Re-Use Right.

7. Releases. All requests for releases of Stored Water from Terrace Reservoir shall be made by CWCB pursuant to the Storage Agreement among Terrace Irrigation Company, CWCB and VALLE DEL SOL COMMUNITY CENTER/ALAMOSA RIVERKEEPERS, attached hereto as Exhibit B. CWCB agrees to request releases of Stored Water in such amounts as may be needed to provide a target instream flow of 10 cfs in the Instream Flow Reach. CWCB and ARK acknowledge that the Alamosa River downstream from Terrace Reservoir is a losing stream, and it may be difficult to meet the target flow until additional water rights are acquired and the aquifer is replenished. Representatives of the CWCB and ARK shall meet at least once a year to develop a mutually agreed plan for release of the Stored Water.

8. Monitoring and Administration of Releases. CWCB and ARK agree to develop a plan for agreeing upon and monitoring releases of Stored Water, including installing, maintaining and funding stream gages, and devising such other measures as may be deemed necessary by the Division Engineer CWCB shall take such action under state law, including requesting administration by the State Engineer and the Division Engineer for Water Division No.3, as may be necessary to put the released water to beneficial use and to prevent the unlawful diversion of the released water at any point downstream of Terrace Reservoir.

9. Remedies. Pursuant to section 37-92-102(3), the terms of this Agreement shall be enforceable by each party as a water matter in the District Court for Water Division 3; provided, however, that before commencing any action for enforcement of this Agreement, the party alleging a breach shall notify the other party in writing of the alleged breach and the parties shall make a good faith effort to resolve their differences through informal consultation. Specific performance shall be the exclusive remedy for failure of either party to comply with any provision of this Agreement.

10. Miscellaneous. This Agreement shall not be assignable by either party without the written consent of the other. All of the provisions of this Agreement shall survive the conveyance of Lucero's Valdez Ditch Right from ARK to the Board, and shall not merge therewith.

11. Effective Date. The Effective Date of this Agreement shall be the date on which it has been signed by both parties.

Dated this ___ day of _____, 2012.

VALLE DEL SOL COMMUNITY CENTER,
on behalf of the ALAMOSA RIVERKEEPERS

BY:_____
Julie Gomez-Nuanes, President

Date: _____

COLORADO WATER
CONSERVATION BOARD

BY: _____
Jennifer Gimbel, Director

Date: _____

SPECIAL WARRANTY DEED

This Deed is made this ____ day of _____, 2012, by the **VALLE DEL SOL COMMUNITY CENTER/ALAMOSA RIVERKEEPERS**, an unincorporated nonprofit Colorado Association (hereinafter "ARK" or "Grantor"), to the **COLORADO WATER CONSERVATION BOARD**, an agency of the State of Colorado (hereinafter "CWCB" or "Grantee").

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor does hereby grant, bargain, sell, convey and assign to Grantee, its successors and assigns, forever, all of the Grantor's right, title and interest in and to the following described water right located in Water Division 3, State of Colorado:

> One-half (0.5) cubic feet per second of the 14 cubic feet per second decreed to the **Valdez Ditch** by the District Court in and for Conejos County, State of Colorado by decree dated July 11, 1888, as Priority No. 9, with an appropriation date of April 10, 1870, (the "Priority 9 Water" or "Lucero's Valdez Ditch Right").

Grantor hereby covenants and agrees that it shall and will warrant and forever defend Lucero's Valdez Ditch Right in the quiet and peaceable possession of the CWCB, its successors and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under the Grantor.

Grantee shall use the subject water right in accordance with the provisions of the Donation and Acquisition Agreement between Grantor and Grantee dated _____ to preserve or improve the natural environment to a reasonable degree in the Alamosa River from the headgate or from the outlet of Terrace Reservoir downstream to the bridge at County Road 10 ("the Instream Flow Reach")

Grantor hereby reserves the right to lease Lucero's Valdez Ditch Right to the original sellers for continued irrigation use until the CWCB desires to begin using Lucero's Valdez Ditch Right for instream flow purposes in the Instream Flow Reach. Grantor further reserves the right to bring about beneficial use of the historical consumptive use of Lucero's Valdez Ditch Right as fully consumable water at any point downstream from County Road 10, subject to such terms and conditions as the Water Court deems necessary to prevent injury to vested water rights or decreed conditional water rights.

In witness whereof, Grantor has executed this deed on the date first written above.

VALLE DEL SOL COMMUNITY CENTER,

on behalf of the ALAMOSA RIVERKEEPERS

_____

Julie Gomez-Nuanes

ATTEST:

By: _____

Name: _____

Title: _____

County of Conejos)
) SS
State of Colorado)

The foregoing instrument was acknowledged before me this ___ day of _____, 2011, by Julie Gomez-Nuanes as President of Valle Del Sol Community Center on behalf of the Alamosa Riverkeepers.

_____
Notary Public

My commission expires: _____

STORAGE AGREEMENT
(Terrace Reservoir)

This Storage Agreement, dated this 4th day of April, 2016, is between THE TERRACE IRRIGATION COMPANY, a Colorado nonprofit corporation (the "Company"), the COLORADO WATER CONSERVATION BOARD ("CWCB"), and the VALLE DEL SOL COMMUNITY CENTER/ALAMOSA RIVERKEEPERS®, an unincorporated nonprofit Colorado association ("ARK").

WHEREAS, the Company owns and operates Terrace Reservoir located in Conejos County, Colorado, which derives its water from, and releases water to, the Alamosa River (the "Reservoir");

WHEREAS, due to existing deficiencies in the spillway, the Reservoir is currently under a State Engineer storage restriction to 7 feet below the crest of its spillway, which limits its current capacity to approximately 13,180 acre feet;

WHEREAS, the Company intends, utilizing money provided by natural resource damage ("NRD") funds available in connection with the cleanup of the Summitville Mine, to redesign and reconstruct the spillway, so as to lift the storage restriction, which would allow approximately 15,182 acre feet to be stored in the Reservoir (the "Spillway Improvements");

WHEREAS, the Alamosa River Watershed Restoration Master Plan and Environmental Assessment dated July 2005(the "Master Plan") identifies the need to improve stream flow in the Alamosa River below the Reservoir as part of an overall restoration plan for the Alamosa River, to be funded, in part, by NRD money;

WHEREAS, from time to time, ARK intends to acquire and donate to the CWCB, and the CWCB expects to accept donation of existing decreed water rights that divert from the Alamosa River or its tributaries above or below the Reservoir using, in part, NRD money, to provide instream flows to preserve and improve the natural environment in the Alamosa River below the Reservoir (the "Acquired Rights");

WHEREAS, ARK and the CWCB desire to store the Acquired Rights in the Reservoir for release from time to time to provide instream flows in the Alamosa River below the Reservoir (the "Instream Flow Releases");

WHEREAS, the Company has agreed to allow such storage and Instream Flow Releases, on the terms and conditions set forth in this Agreement;

THEREFORE, in consideration of the foregoing and the mutual agreements set forth below, the parties agree as follows:

1. Storage Right. The Company agrees to allow the CWCB to store up to 2,000 acre feet of water derived from the Acquired Rights in the Reservoir on an annual basis (the "Stored Instream Flow Water"), provided that, and only if and when, the Spillway Improvements to Terrace Reservoir are completed and the existing storage restriction lifted. If the existing storage restriction only partially lifted, the Stored Instream Flow Water shall be limited to the amount over and above 13,180 acre feet that can be legally stored in the Reservoir after the Spillway Improvements are completed.

2. Change of Acquired Rights. ARK and/or the CWCB shall be responsible for the acquisition of the Acquired Rights, and for obtaining the approval of the Division 3 Water Court for the change and storage of the Acquired Rights in Terrace Reservoir for subsequent release for instream flow purposes (the "Water Court Change"). The Acquired Rights cannot be diverted into storage in Terrace Reservoir except when and to the extent (a) the Acquired Rights are in priority, and (b) there is physical water available (without regard to Instream Flow Releases) at the historic headgates of the Acquired Rights. Any such Water Court Change decree shall incorporate this Agreement by express reference and be subject to the provisions of this Agreement. Subject to compliance with the foregoing, the Company agrees not to oppose any such Water Court Change proceeding.

3. Instream Flow Releases. The Company will make releases of the Stored Instream Flow Water from time to time on the dates and in the amounts directed in writing by the CWCB, or its agents, provided that the Company need not make such releases at times that the full release capacity of Terrace Reservoir is otherwise being used to make releases of irrigation water for delivery to shareholders in the Company. Neither the Company nor any of its shareholders (nor any other water user) shall be entitled to divert from the Alamosa River any Stored Instream Flow Water released from the Reservoir under the provisions of this Paragraph 3. The CWCB or its agents will work with the Division 3 Engineer and Water Commissioners to ensure that the Instream Flow Releases are protected from diversion and are appropriately documented in annual records maintained by the Office of the Division 3 Engineer. If the CWCB elects to appoint a person or entity to act as its agent with regard to this Paragraph 3, the CWCB shall provide written notification to the Company of such designation.

4. Evaporation and Seepage Losses. The Stored Instream Flow Water shall be subject to the same evaporation and seepage losses charged by the Company or Water Commissioner to any other water stored in Terrace Reservoir, on a pro rata basis. The Company shall notify ARK and the CWCB of the rate of evaporation and seepage losses charged, and update such information whenever the rate is changed.

5. Beginning of Season Bookover. Any Stored Instream Flow Water that remains in storage on the date that the Reservoir begins to make irrigation water releases (normally in April) shall be booked over to the Company for irrigation use by its shareholders, and shall no longer be available for Instream Flow Releases unless this Agreement is amended to provide for carry-over storage on terms and conditions

acceptable to all parties. The Company shall notify ARK and the CWCB in writing, if possible, before the start of each irrigation season to allow any Stored Instream Flow water remaining in the Reservoir to be released for instream flow purposes prior to such bookover. The Company agrees to use its best efforts to assist the CWCB in fully utilizing the Stored Instream Flow Water each year.

6. Spill. In the event of a spill from the Reservoir, any Stored Instream Flow water will be spilled first. If the Company anticipates such a spill event, it will provide ARK and the CWCB, if possible, prior notice before the spill is expected to occur, in order to enable ARK and CWCB to make a controlled release of the Stored Instream Flow water prior to such a spill. ARK and the Company acknowledge that it may not always be possible for the Company to anticipate a spill event and provide such prior notice.

7. Accounting. The Company, working with the District 21 Water Commissioner, shall maintain complete and accurate records of the amount of Acquired Instream Flow Rights stored in the Reservoir at any time, the amount of any evaporation and seepage losses assessed against such water, the amount of any Instream Flow Releases, the amount of any Stored Instream Flow Water booked-over pursuant to Paragraph 5 above, and the amount of any Stored Instream Flow Water spilled pursuant to Paragraph 6 above. The Company or Water Commissioner shall provide such records to the CWCB and ARK from time to time upon reasonable request.

8. Costs and Expenses. The Company shall bear all costs and expenses associated with the storage and release of water pursuant to this Agreement, except as expressly set forth herein. As part of the improvements of the spillway, the Company will design and install a mechanism to allow the release of measurement of the Stored Instream Flow water at low flow release rates.

9. Priority of Rights. Any new instream flow appropriations made by the CWCB on the Alamosa River shall be junior in priority to the existing storage rights decreed to the Reservoir. However, the Acquired Rights can continue to exercise their original priorities, subject to any terms and conditions imposed in the Water Court Change proceedings.

10. Dispute Resolution. The Company, the CWCB and ARK shall meet at least once a year to review and discuss operations under this Agreement, and to attempt to resolve any disputes. Before commencing any litigation relating to this Agreement, the parties agree to meet and attempt to resolve their dispute in good faith. The parties shall have the right to enforce this Agreement by injunction or specific performance. All parties waive any claim to assert or recover damages for breach of this Agreement.

11. Notices. Any notices required or permitted under this Agreement shall be given to the party, or their successors and assigns, at their address set forth below. Any party may change their address from time to time by notice properly given. Notices shall be delivered by U.S. Mail, first class postage prepaid, and shall be deemed received three

days after deposit in the U.S. Mail. An email copy of a notice is encouraged to be given as well, but is not required.

If given to the Company:
Gerald Faucette
President
The Terrace Reservoir Company
P.O. Box 109
Monte Vista, CO 81144
Email: gerald070@centurytel.net
Phone: 719-274-4459

If given to ARK:
Cindy Medina
Alamosa River Keepers
P.O. Box 753
La Jara, CO 81140
Email: cmariver01@gmail.com
Phone: 719-274-4298

If given to the CWCB:
Linda Bassi, Chief
Stream & Lake Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Suite 721
Denver, CO 80203
Email:Linda.bassi@state.co.us
Phone:303-866-3441

12. ARK/CWCB Agreement. ARK and the CWCB are or may become parties to separate agreement(s) between them regarding the acquisition, donation and use of the Acquired Rights. Nothing in this Agreement shall be deemed to modify or amend any such agreements.

13. Miscellaneous.

(a) This Agreement constitutes the complete agreement between the Company, on one hand, and ARK/CWCB on the other. All prior negotiations, understandings or agreements related hereto as merged herein, subject to Paragraph 12 above.

(b) This Agreement shall be enforceable in the Water Court as a water matter, pursuant to C.R.S. §37-92-102(3).

(c) The waiver, or failure by a party to enforce any of its rights under this Agreement, on one or more occasions shall not modify this Agreement or preclude such party from fully enforcing its rights on subsequent occasions.

(d) The parties recognize that operation experiences may require modifications to be made to this Agreement to best achieve the goals of all parties. The parties agree to discuss any such possible amendments in good faith. Any modification or amendment of this Agreement, however, must be set forth in a document executed by all of the parties hereto; provided that should ARK cease to exist prior to the time it assigns its rights hereunder to another party, then only the written consent of the CWCB and the Company shall be required to amend or modify this Agreement.

(e) This Agreement shall constitute a restrictive covenant running with and burdening the Reservoir and benefitting the CWCB and the Acquired Rights, shall be recorded in Conejos County, and shall be binding on the Company and its successors and assigns. ARK may freely assign any of rights or obligations under this Agreement to another entity, but shall notify the Company and CWCB of any such assignment.

(f) This Agreement shall be perpetual in term.

(g) This Agreement shall not be effective until and unless executed by authorized representatives of all the parties hereto. This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one and the same Agreement.

Executed as of the date first set forth above.

[SEPARATE EXECUTION PAGES FOLLOW]

THE TERRACE RESERVOIR COMPANY,
a Colorado nonprofit corporation

By: _____
Name: Gerald Faucette
Its: President

STATE OF COLORADO)
) ss.
COUNTY OF CONEJOS)

The foregoing instrument was executed and acknowledged before me this 25 day of FEBRUARY, 2011, by GERALD FAUCETTE as President of The Terrace Reservoir Company, a Colorado nonprofit corporation.

Witness my hand and official seal.

_____
Notary Public

My commission expires: 11/15/14

LORAL HALL NOTARY PUBLIC STATE OF COLORADO
MY COMMISSION EXPIRES NOVEMBER, 15, 2014

VALLE DEL SOL COMMUNITY CENTER,
On behalf of the ALAMOSA RIVER KEEPERS

By: Julie Gomez-Nuanes
Julie Gomez-Nuanes, President

STATE OF COLORADO)
) ss.
COUNTY OF CONEJOS)

The foregoing instrument was executed and acknowledged before me this 18th day of February, 2011, by Julie Gomez-Nuanes as President of Valle Del Sol Community Center.

Witness my hand and official seal.

Carolyn K. Emtz
Notary Public

My commission expires: 9-15-2013

THE COLORADO WATER CONSERVATION BOARD

By: Jennifer Gimbel
Name: Jennifer Gimbel
Its: Director

STATE OF COLORADO)
) ss.
COUNTY OF Denver)

The foregoing instrument was executed and acknowledged before me this ~~February~~ 14TH DKB day of February, 2011, by Jennifer Gimbel as Director of the Colorado Water Conservation Board.

Witness my hand and official seal.

Deborah K Burrell
Notary Public

My commission expires: March 22, 2014

National Paper

Number Nine.

That Ditch numbered Nine
named "The Valdez Ditch"

Jose Mª Valdez, Juan Jose Apodaca, Juan Bernadino Valdez, Leonardo Muniz, Theodore Goupil, Jesus Mª Romero, Alcario Romero, Luis Rivera, Juan de Jesus Martinez, Marcelino Romero, Francisco Lucero, Hilario Atencio, Juan Ignacio Olivie and Melitan Vigil, claimants in this matter having been found in manner aforesaid to be a ditch used for the irrigation of lands and taking its supply of water from the Alamosa River, with headgate on the south bank thereof, at a point in the S.W¼ of Sec 26. Twp 36 N. Range 7 E. N.M.M, with a general course southerly, and entitled by two several appropriations to use of water from said river to two several priorities, to wit: Priority Nº 9 by construction thereof and Priority Nº 90 by first enlargement thereof, and thereby to the several quantities of water with the number and date of each appropriation thereof, hereinafter in this paragraph mentioned, for the use aforesaid, and for the benefit of the party or parties entitled thereto; it is hereby adjudged and decreed that there be allowed to flow into said Ditch Nº 9 from said river, for the use aforesaid and for the benefit aforesaid, under and by

virtue of said appropriation by construction — Priority No 9 — so much water as will flow therein on a grade of eight inches to one hundred feet, width 5 feet, with a depth of water flow of one foot, computed at Fourteen cubic feet of water per second of time: The appropriation of which water took effect on, and said Priority thereof — No 9 — dates from the 10th day of April A.D. 1870

And, further, that there be allowed to flow into said Ditch No. 9, from said river, for the use and purpose aforesaid and for the benefit aforesaid, under and by virtue of said appropriation of water by first enlargement — Priority No 90 — so much additional water as will supply the increased capacity of said ditch as enlarged to a width of twelve feet, same grade, with a depth of water flow two feet and six inches, computed at seventy-two and 63/100 (72.63) cubic feet of water per second of time, The appropriation of which last-mentioned water took effect on, and the Priority thereof — No 90 — dates from the 23rd day of September A.D. 1887, Making in all eighty six and 63/100 (86.63) cubic feet of water per second of time.

KWC
KNOX WATER CONSULTANTS, LLC
KENNETH W. KNOX, PH.D., P.E.

Ms. Cindy Medina
Alamosa Riverkeeper
P.O. Box 753
La Jara, CO 81140

Subject: Water Rights and Consumptive Use Analysis for Alamosa Riverkeepers

September 17, 2012

Dear Ms. Medina:

Knox Water Consultants (KWC) is pleased to provide Alamosa Riverkeepers with this water right and consumptive use analysis associated with the Valdez Ditch, Priority No. 9 in the Alamosa River watershed. This investigation provides an assessment of the firm yield of the water rights claimed to be under ownership and/or control of Mr. Gil Lucero that is being contemplated for acquisition by Alamosa Riverkeepers. Should you deem additional investigation or actions appropriate, this assessment will serve as the technical foundation for a change in water right application filed in the Division III Water Court. The major tasks and findings of this analysis are described within the ensuing narrative.

Review of Adjudicated Water Rights

The first task included a review of the adjudicated direct flow water rights for the Valdez Ditch in former Water District 21 in the Rio Grande Basin to verify the amount, location, adjudicated beneficial use(s), priority, and other relevant information.

Upon compilation and review of the court decrees, the water rights considered for acquisition by Alamosa Riverkeepers are decreed for irrigation use only. The table below describes the net adjudicated status of water rights in the Valdez Ditch.

Table 1. Adjudicated Water Rights in the Valdez Ditch in Water District 21

Water Right	Adjudication Date	Appropriation Date	Amount	Priority	Status
Valdez Ditch	07/11/1888	04/10/1870	14.0 cfs	No. 9	Absolute
Valdez Ditch	07/11/1888	09/23/1887	57.63 cfs	No. 90	Absolute

For the purpose of this investigation, it is my understanding that Alamosa Riverkeepers is contemplating the acquisition of 0.5 cubic feet per second (cfs) from Mr. Lucero, which is from the senior No. 9 priority water right. The structure and lands irrigated under the subject Valdez Ditch Priority No. 9 water rights that are contemplated for acquisition by Alamosa River Keepers are portrayed in Figure 1.

3791 S. PEACH WAY DENVER, COLORADO 80237
PHONE: (303) 263-4608 | KEN@KNOXWATER.COM

Compilation of Water Diversion and Irrigated Acreage Records

Historic diversion and irrigated acreage records available through electronic files maintained by the Colorado Division of Water Resources were compiled for this investigation. The period of record available for the water conveyance structures associated with the Valdez Ditch extended from 1950 through 2008. This period of record reflects periods of drought or dry conditions, wet periods, and average conditions. Provided below is a summary of the water diversion records.

Valdez Ditch (Structure ID Number 604) retains a senior net absolute water right for 14.0 cubic feet per second for diversion from the Alamosa River. The ditch retains a junior absolute water right for 57.63 cubic feet per second that is filled sporadically during periods of wet or excess water supplies[1]. The diversion headgate for the Valdez Ditch is located approximately 5.1 miles northwest of Capulin, Colorado. The diversion structure includes a low-head diversion and headgate structure diverting from the south bank of the Alamosa River in the SE ¼ of Section 27, Township 36 N, Range 7 E, New Mexico Principal Meridian. Two different periods of time were analyzed to provide a comparative analysis of historic diversions under this structure. The first reflects the entire period of record available electronically from 1950 through 2008. The second is a 29-year period from 1980 through 2008 that also includes a series of wet, average, and dry year's hydrology. Review of annual and daily diversion records indicate the maximum daily recorded diversion typically occurs early in the irrigation season in April to late-May, followed by decreasing diversions in subsequent summer months when natural streamflows in the Alamosa River decline. This period was also selected because it reflects more recent historic diversion activity. Results of the diversion analysis are tabulated below:

Table 2. Valdez Ditch Diversion Record Summary

Period of Record	Average Number of Days Water Carried	Average Annual Diversion (acre-feet)
1950-2008	164	3,814
1980-2008	171	4,070

Irrigated Acreage – Lucero Property

The irrigated lands attributed to Mr. Gil Lucero encompass a total of 17.16 acres in the NE ¼ NW ¼ Section 12, Township 35 N, Range 7 E, NMPM. The aerial photograph shows two parallel and rectangular fields that were irrigated with a respective area of 8.859 and 8.298 acres respectively. The total amount of irrigated land was reduced from the original 20.0 acres to reflect the long-term storage of equipment and sheds in the northeast corner of the easternmost parcel as portrayed on the aerial photograph. The irrigated acreage estimates were derived from

[1] The original adjudicated amount for Priority No. 90 was 72.63 cfs. In Case 02CW12, 15 cfs was abandoned.

five years of aerial photographs and irrigated acreage information: 1936, 1955, 1990, 1998, and 2002. The claimed 17.16 acres is considered representative of the historic irrigated lands.

In an interview with Mr. Lucero on June 15, 2010 he indicated his historic cropping practice was to rotate alfalfa and grass hay on the two parcels on an approximate equal time basis over the last several decades. At the time of the field inspection, both fields were planted in grass hay. However, remnants of alfalfa were also evident in the two subject fields.

Review of the Water Administration Practice/ River Call Regime

I performed an investigation into the typical water administration scheme for the Alamosa River watershed to qualify the frequency and duration the direct flow water and storage water rights are curtailed, in total or partial amounts, necessary to meet the demands of senior water right owners within the system who exercise their authority to "call" for water.

For context, the Alamosa River is within the Rio Grande Basin in Water Division III. The Alamosa River system is considered to be over-appropriated (water demand exceeds available supplies). Direct flow and storage water rights within these systems are routinely curtailed, in total or partial amounts, to satisfy the demands of downstream senior water rights that are receiving insufficient supplies.

Investigation into the historic diversion records and sporadic historic river call chronology for the Alamosa River system indicates the owners of the Valdez Ditch routinely exercise their authority as holders of the senior Number 9 priority to divert water. The Valdez Ditch is also located higher in the watershed than other senior water rights in the Alamosa River system such as the El Viejo Ditch (Number 1 Priority) and Gabino Gallegos Ditch (Priority No. 11). The close proximity to the mountain/valley interface and senior priority reflects the amount and duration of water that is diverted in the Valdez Ditch and documented in the annual diversion records. Review of the historic diversion records indicate the ditch does not call for its entire senior 14.0 cfs priority only during times of excess water supply during spring runoff, significant precipitation events, or during limited periods when diversions are reduced to harvest alfalfa or other crops.

It is apparent that the Valdez Ditch is routinely able to receive additional water supplies under its junior No. 90 priority. During the period of record from 1980 through 2008, the maximum recorded diversion exceed 14.0 cfs (senior priority No. 9) the majority of the time, 17 out of 29 years.

Rio Grande Compact

Administration of tributary water rights in Water Division III is founded upon the dual water allocation requirements of complying with the Doctrine of Prior Appropriation (priority system) within the tributary stream system in Colorado and meeting interstate delivery obligations under the 1938 Rio Grande Compact. The Valdez Ditch, as part of the Alamosa River system, is exempt from compliance with Rio Grande Compact water delivery obligations. The Colorado Supreme Court found the compact negotiators did not include the Alamosa River or La Jara Creek because they "flow through flat land, the stream channels are not clearly defined, and

practically no water from either creek reaches the Rio Grande except during periods of flooding".[2]

Historic Consumptive Use Analysis

A historic consumptive use analysis was performed for the 0.5 cfs claimed by Mr. Lucero. Although historic cropping information was not available, the crop mix for the Lucero lands was apportioned as 50% alfalfa and 50% grass hay. These estimates are considered reasonable in context of farming practices in the local community. The crop irrigation requirement was determined for the subject water rights using the Manassa, Colorado area climate information and through application of the modified Blaney-Criddle formula. The estimated crop irrigation requirement used in this analysis, after subtracting effective precipitation, for alfalfa is 21.41 inches per year and for grass hay is 17.35 inches per year (1.78 and 1.45 feet respectively). Review of the historic diversion and irrigated acreage records maintained by the Division of Water Resources indicates the Valdez Ditch is able to provide a full irrigation water supply in most years. Therefore, the consumptive use attributed to the proportional ownership for Mr. Lucero in the Valdez Ditch Priority No. 9 is based upon his fractional ownership (0.5 cfs divided by the total of 14.0 cfs in Priority No. 9) multiplied by the monthly crop irrigation requirement based upon the aforementioned crop mix and their respective irrigated acreages.

The total historic consumptive use attributed to 0.5 cfs of the Valdez Ditch for lands historically irrigated by Mr. Lucero is **26.74** acre-feet/year.

Table 3. Valdez Ditch Diversions and Consumptive Use (all values in AF)

1950-2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Average Diversions[3]	9.20	327.43	885.85	1039.94	657.40	475.60	357.26	266.50	48.90	4068.06
Lucero % Diversions	0.33	11.69	31.64	37.14	23.48	16.99	12.76	9.52	1.75	145.29
Lucero Consumptive Use	0.72	1.56	3.14	5.38	6.00	4.86	3.30	1.37	0.41	**26.74**

Field inspection and interviews

In conducting this investigation, I conducted a series of interviews with the present owner of the water right and local water officials to develop a more comprehensive understanding of ditch

[2] *Alamosa-La Jara Water Users Protection Association v. Gould* (1983).
[3] The Total column in Table 3 represents the cumulative average diversions during the irrigation season months of March through November for the period of record. The Total of 4068.06 differs from the 4070 acre-feet quantity represented in Table 2 due to differences in rounding. The amount of 4068.06 acre-feet is conservative and reliable for application within a consumptive use analysis.

operations and to identify outstanding issues that may impact the historic consumptive use computation and/or the contemplated change in water rights application.

I also participated in a one-day field inspection of the water rights, conveyance structure, their proximity to other water rights, and lands served by the Valdez Ditch that are subject to the proposed transfer on June 15, 2010. Parties in attendance included: Luis Heredia, Water Commissioner; Gil Lucero, water right and landowner; and myself.

Irrigated Lands

Mr. Gil Lucero verbally confirmed ownership of his respective water rights in the Valdez Ditch Priority No. 9. Mr. Lucero also verified the historically irrigated lands on an aerial photograph that was used to quantify his respective acreage. The lands under ownership of Mr. Lucero have been irrigated exclusively through flood irrigation. The lands are level and a flood irrigation efficiency of 60% is a reasonable estimate based upon the quality of land preparation and topographical relief.

Return Flows

The general slope of land in the vicinity of the subject property is minimal and to the south by southeast. The Lucero lands are irrigated by a lateral from the Valdez Ditch as depicted on Figure 1. There was no evidence of phreatophytes or other physical features that exhibited excess or surface water runoff from the irrigated fields. It is therefore reasonable to conclude that any irrigation waters delivered to the irrigated return flows not consumed by the crop evapotranspiration process percolate through the soil moisture profile into the unconfined aquifer.

It is typically necessary to replace the return flows in time, amount, and location for a pending water right transfers to the degree that such change would adversely impact downstream water rights. Due to the rather unique circumstances surrounding the discrete water rights and irrigated lands that form the subject of this investigation, particularly in context of the natural hydrology of the Alamosa River and proximity to other water rights, there is no apparent evidence the return flows migrate back to the stream and contribute toward fulfilling downstream water rights during the periods in which they are in priority and could apply water to beneficial use. As confirmed by local water administration officials, the Alamosa River is a highly dynamic river that typically requires administrative curtailment of junior water rights in a rapid progression that corresponds to a steep declination of streamflows after early spring runoff. Return flows from the irrigated lands on the Lucero property do not appear to accrue back to the stream system in time or amount available for irrigation by downstream water streamflow diversions.

The contemplated change of water right application is designed to enhance the in-channel beneficial use of water in the Alamosa River. The Alamosa River is an ephemeral stream. It is tributary to the Rio Grande only during times of excess flooding conditions. The dedication of these water rights in a change of water right proceeding to supplement existing streamflows in the Alamosa River will naturally percolate through the streambed channel and recharge the unconfined aquifer as they progress down the river to a greater extent than the current irrigation practice. Water formerly consumed by crop evapotranspiration will supplement streamflows and increase the total contribution of water into the ground water aquifer.

Ditch Conveyance Losses

The Valdez Ditch is an open-channel water conveyance structure. The estimated distance between the headgate and delivery to Lucero irrigated lands (including laterals) is approximately 3.5 miles. There are no empirical gain/loss studies available that quantify the ditch loss between the headgate and Mr. Lucero's point of delivery.

Findings and recommendations

This water rights and consumptive use analysis is limited to observance of the current physical state of existing structures and the review of historic data and information associated with the Valdez Ditch and two subject irrigated properties Based upon this analysis, the primary findings are as follows:

1. In-priority water diversions under the Valdez Ditch, Priority No. 9 in the amount of 0.5 cfs have historically provided the source of water supply to irrigate 17.16 acres owned by Mr. Lucero.
2. Quantification of the historic consumptive use of water attributed to the 0.5 cfs owned by Mr. Lucero to irrigate 17.16 acres in the NE ¼ of the NW ¼ in Section 12, Township 35 N, Range 7 E, NMPM is estimated to be 26.74 acre-feet per year.
3. The dominant restriction in a change of water right proceeding before the Water Court is a limitation to historic consumptive use. This restriction may not apply to the change in water right application contemplated by Alamosa Riverkeepers. It is my understanding that acquisition of these water rights is intended to facilitate a potential change in water right for those portions of the Valdez Ditch from irrigation of croplands to temporary storage in Terrace Reservoir and the subsequent release downstream for in-channel river restoration and ecosystem enhancement. The total of in-priority diversions, 0.5 cfs attributed to Mr. Lucero under the Valdez Ditch No. 9 priority, is contemplated for the change in water right. Injury to other vested water rights in the Alamosa River system is not evident from this potential change in water rights since there is no expansion of use or impact to downstream water rights through diminution of return flows.
4. The potential acquisition and change in water right water court proceedings for each of the contemplated acquisitions under the Valdez Ditch, Priority No. 9 is not dependent upon the other.

Conversion of the potential acquired water rights in the Valdez Ditch from irrigation to temporary storage in Terrace Reservoir and the subsequent release of these waters for instream flow purposes in the Alamosa River is a viable option for Alamosa Riverkeepers. It is important to note that the authority to approve the contemplated change in water right application to facilitate this transfer is vested exclusively to the Water Court for Division III.

Recommendations

In the event Alamosa Riverkeepers acquires those portions of the Valdez Ditch, Priority No. 9 that is contemplated and progresses toward a change in water right application, I respectfully recommend the following actions:

1. Collaborate with representatives of Terrace Irrigation Company, the Colorado Water Conservation Board, and appropriate legal counsel to prepare a change in water right application.
2. Coordinate with legal counsel to prepare a change of water right application and to identify potential terms and conditions for a draft decree; to develop a strategy for potential litigation; and to prepare exhibits and provide expert witness testimony, if necessary.

Thank you for the opportunity to provide this analysis into the water rights contemplated for acquisition by Alamosa Riverkeepers. If you have any questions or wish to discuss the report further, please contact me at your convenience.

Sincerely,

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