7 Economic Analysis – Water Supply Costs and Benefits

7.1 Project 1 – Cross Valley Canal to Calloway Canal Intertie

North Kern Water Storage District (North Kern) and Cawelo Water District (Cawelo) are proposing to construct a bi-directional water conveyance connection or intertie, identified as the *Cross Valley Canal to Calloway Canal Intertie* (Project), and these districts are requesting a grant under Proposition 84 to assist with funding. The intertie is intended to serve several purposes and will provide several types of benefits which include the following:

Water Supply

- Avoided Water Supply Purchases (Bring more surplus surface water into the Region);
- Avoided Operations and Maintenance costs;
- Avoided Water Shortage Costs; and
- Revenue from Water Sales.

Water Quality and Other (discussed in Attachment 8)

- Reduce Water Treatment Costs;
- Power Cost Savings;
- Emergency Back-up, redundant means for conveying SWP water into North Kern and Cawelo;
- Reduced emissions (due to less pumping);
- Increased labor; and
- Expanded Water Banking Interconnections; provide route for CVP Delta water and SWP water to be delivered to CVP Contractors to complete banking and exchange agreements

Attachment 7 ***Economic Analysis – Water Supply Costs and Benefits*** includes analysis of the first four benefits listed. The remaining benefits are analyzed under Attachment 8 ***Water Quality and Other Expected Benefits.*** Note that Flood damage Reduction Benefits are addressed separately in Attachment 9.

The proposed Project was identified in a recently completed Integrated Regional Water Management Plan, July 2007 (IRWMP) for the Poso Creek Region, which includes the Applicant for the Proposition 84 Grant and several other water districts that share a common groundwater resource. The intertie would connect the Cross Valley Canal (which provides a link to the California Aqueduct and SWP water) with North Kern's Calloway Canal in order

to conserve and optimize use of surface water, and reduce energy requirements. The intertie is designed to operate in either direction by gravity flow at rates up to 660 cfs. The conveyance capacity at the tie into the CVC to be constructed under this grant will be limited to 400 cfs. Therefore the benefits analysis contained herein will be based on the 400 cfs capacity. The Project would cost $10,787,200 in construction costs and $232,029 per year for operation and maintenance costs.

The Water Supply Benefits associated with the *Cross Valley Canal to Calloway Canal Intertie* can either be quantified or described qualitatively and are summarized in Exhibit 7.1-1. A summary of costs and benefits is provided in Exhibit 7.1-2. For purposes of the Grant application the Water Supply Benefits used in the economic analysis tables are Avoided Water Supply Purchases and Avoided Operations and Maintenance Costs. The other benefits may occur in some mix of operations and use of the new facilities, but differentiating the uses at this time would be speculation and would not add to or detract from the benefits anticipated in the analysis.

EXHIBIT 7.1-1
Project 1 Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Avoided Water Supply Purchases	Monetized	Local
Avoided Operations and Maintenance Costs	Monetized	Local
Avoided Water Shortage Costs	Monetized	Local
Revenue From Water Sales	Monetized	Local
Water Quality Benefits		
Reduce Water Treatment Costs	Monetized	Local
Other Benefits		
Power Cost Savings	Monetized	Local
Ecosystem Improvements	Qualitative	Local
Emergency Back-Up	Qualitative	Local
Reduced Emissions	Quantitative	Local and State
Increased Labor	Quantitative	Local and State
Expanded Water Banking Interconnections	Qualitative	Local, State and Federal

EXHIBIT 7.1-2
Project 1 Benefit and Cost Summary (Excluding Flood damage Reduction Benefits)

Type of Benefit	Present Value	Qualitative Indicator
Capital and O&M Costs	$12,301,954	
Water Supply Benefits (Attachment 7)		
Avoided Water Supply Purchases	$22,293,270	
Avoided Operations and Maintenance costs	$2,582,499	
Avoided Water Shortage Costs	Monetized	++
Revenue From Water Sales	Monetized	++
Water Quality Benefits (Attachment 8)		
Reduce Water Treatment Costs	$1,085,330	
Other Benefits		
Power Cost Savings	$6,736,713	
Ecosystem Improvements	Qualitative	+
Emergency Back-Up	Qualitative	++
Reduced Emissions	Quantitative	++
Increased Labor	Quantitative	+
Expanded Water Banking Interconnections	Qualitative	++
Total Monetary Benefits	**$32,686,324**	
Notes: *+ indicates net benefits are likely to increase* *++ indicates net benefits are likely to increase significantly* *O&M = operations and maintenance*		

7.1.1 Costs

As shown in more detail on Table 7 – Project 1, the Project costs are estimated to be $10,787,200. Project implementation will occur over 15 months, with 40% during the first year and 60% during the second year. Annual administration, operations and maintenance costs will increase with inflation, but are otherwise not expected to increase with implementation of the project. The Project will actually result in lower O&M costs than the without project operations, as summarized under benefits. The total water supply, quality and other benefits present value of the costs over the useful life of the project is $12,301,954 as shown in Table 11 – Project 1. Note Flood Damage Reduction costs are not reflected in this total.

7.1.2 Water Supply Benefits

7.1.2.1 Avoided Water Supply Purchases/Costs

Presently, SWP water can only be delivered into North Kern and Cawelo through the last pumping plant (PP) on the Cross Valley Canal (CVC) , PP7, and Cawelo's Pump Station "A" (PS-A). While North Kern is not an SWP contractor, SWP water is available under water supply contracts held by both Cawelo and ID4. The capacity of PS-A is limited to about 165 cfs and the CVC Calloway turnout is about 95 cfs for a total of 260 cfs. PS-A is used by Cawelo to take delivery of its SWP water (which is its primary source of surface water supply) to meet irrigation demands. Not only would the proposed intertie avoid the pumping lift/cost to deliver SWP water into North Kern, but it would greatly increase the potential rate of delivery of wet-year and/or winter water that is available from time to time from the SWP (in particular, "Article 21" water and carryover evacuation from San Luis Reservoir).

Increased rate of delivery is important to fully utilize the significant spreading capacity which North Kern has successfully operated for over 50 years, with about one-half of that capacity (or about 20,000 acre-feet per month on a short term basis) served from the Calloway Canal by gravity and the other half by pumping from a new pumping plant and connection between the Calloway and the Lerdo Canals (currently under construction). This spreading capacity allows for the capture of off-peak flows, i.e., flows that are in excess of the relatively low irrigation demand during the off-peak season. While North Kern uses this spreading capacity for its own purposes in regulating its highly variable Kern River supply (its primary source of surface water), there are significant periods of time when this capacity is underutilized. Cawelo recently completed construction of a significant spreading facility (about 560 acres) which can also be reached with the new Calloway to Lerdo connection; accordingly, spreading in unused North Kern and Cawelo capacity would be the first choice from a regional water management perspective. Therefore, if supplies are available at times capacity in the system is available, more than 40,000 acre-feet per month can be recharged at a rate of over 660 cfs. An operations analysis has been prepared using a diversion capacity of 400 cfs based on deducting the existing facility capacities from the total absorptive capacity. (Capture of conserved water is based on 66 -260 = 400 cfs, 24,000 acre-feet per month).

Based on operations analyses looking at water supply timing and canal/spreading-ground capacity availability, average annual water supplies conserved with the Project can range from 5,700 acre-feet to 14,500 acre-feet depending on study assumptions and water availability. For purposes of the economic analysis 5,700 acre-feet on an average annual basis has been chosen as representative, as defined in Appendix 7.1-1. Once in storage, the water can be held in place to help in decreasing pump lifts, could be stored temporarily (seasonally for irrigation deliveries or held for dry year recovery) or could be sold/marketed to outside interests. Storage of this supply will result in less water pumped from groundwater during dry years and less reliance on the Delta during summer months. If this water was not

captured it would flow out to the ocean and not be available for beneficial use within the Region.

The Poso Creek IRWMP and associated System Optimization Report identified a loss of water to the Region of about 100,000 acre-feet on an average annual basis. Because of this growers are forced to pump additional groundwater to make up the difference. However such pumping is not sustainable as the water table continues to decline, in some portions of the Region the decline is already to a point that it is not cost effective to pump groundwater, or groundwater quality will deteriorate to the point of causing losses to crop yield. Those areas must find alternative surface water supplies or not farm. The cost to acquire 5,700 acre-feet of annual supply can be expressed in terms of what other central valley water districts have paid for supplies. Recent sales have varied from $225/acre-feet to $655/acre-feet depending on SWP allocations, as provided in Appendix 7.1-2.

The most recent water sales have been from Dudley Ridge Water District to Tejon Ranch for $11.7 million for 1,998 acre-feet of SWP Table A allotment. This equates to a unit annual present worth of about $293/acre-foot plus annual SWP charges of about $100/acre-foot assuming 100% SWP allocation, for a total of $393/acre-feet. At 60% reliability this cost becomes $655/acre-feet. Another recent sale includes the purchasing district, West Kern Water District, paying $100/acre-feet plus the annual SWP costs. During 2010 with an SWP allocation of 50%, this amounted to just over $300/acre-feet. If the allocation would have remained at 35% of Table A, the cost would have been $385/acre-feet. A third recent sale was Kern Delta Water District to West Kern Water District at $100/acre-feet over SWP fixed costs, which has ranged from $225/acre-feet to $250/acre-feet. Based on the range of water sales and the ability of local growers to pay for water, the $300/acre-feet cost was used in the analysis. The present value of the expected avoided water supply purchase costs over the life of the project is $22,293,270 as shown in Table 12 – Project 1.

7.1.2.2 Avoided Operations and Maintenance Costs

In 2007 Cawelo Water District conveyed about 11,000 acre-feet annually through PS-A in order to make deliveries into the district. Averaging the PS-A deliveries over the last ten years, shows that Cawelo pumps about 24,800 acre-feet per year (Appendix 7.1-3). Occasionally ID4 will exchange SWP water with North Kern for Kern River water and use PS-A to deliver the SWP water to North Kern. ID4 benefits are described separately from Cawelo's therefore the ID4 use of PS-A is deducted from the historic PS-A pumping records. Historically ID4 exchanged about half of its treatment plant supply of 14,400 acre-feet per year with North Kern and about half of that was pumped through PS-A. Deducting ID4 use of the PS-A,(.5*14,400=7,200) (Appendix 7.1-3), about 17,600 acre-feet get conveyed through PS-A on an average annual basis. ID4 use of PS-A is deducted here since it is accounted for separately below. Fifty percent of historic ID 4 exchange amount is used based on ID4s availability to use other methods to exchange with North Kern by arrangements with other Kern River Districts on an as available basis. As Kern River

supplies are less available for delivery to agricultural districts like Cawelo and Kern-Tulare Water District, the ability for ID4 to exchange supplies with others and avoid use of PS-A will decrease from the historic amounts and Cawelo's need to use PS-A to pump its own SWP Table A (45,000 acre-feet) will increase. However for purposes of this analysis, historic use of PS-A is used. Therefore it is likely that benefits will increase from those defined herein based on historical use.

Construction and use of the Project will eliminate the need to operate PS-A, and will reduce use of the CVC PP7 and associated canal extension Pool 8. Cawelo pays about $2.55/acre-feet in operations and maintenance costs for PS-A, and $2.10/acre-feet for the CVC Extension Pool 8. Based on the average annual flow of PS-A, water supplies better managed to reduced power usage and costs with the Project have been estimated at 17,600 acre-feet on an average annual basis, as shown above. The annual savings associated with that amount of water is about $82,000. The present value of the avoided operations and maintenance costs for Cawelo over the life of the project is $1,066,948 as shown in Table 12 Project 1.

As described above, Periodically KCWA ID4 conveys about 7,200 acre-feet per year of SWP water to North Kern via PS-A and the Calloway Turnout of the CVC located in CVC Pool 8 in order to payback for exchanges for Kern River water run through the Henry C. Garnett Water Purification Plant (Treatment Plant). This requires use of the CVC Extension Pool 8, CVC PP7 and PS-A. The new intertie will enable conveyance to North Kern without using CVC PP7, Pool 8 and PS-A. This will save $2.10/acre-feet in O&M costs on the CVC and $2.55/acre-feet at PS A. Historically ID4 treats about 30,000 acre-feet per year, of which only a portion would get conveyed this way. Building the project allows the full 30,000 acre-feet per year of SWP water to be exchanged for Kern River water, eliminating the need to go through PP7 and PS-A. While ID4 has other options than North Kern for the exchange, it only has firm commitments for about ½ the full amount.

In addition ID4 has recently completed a project nearly doubling the capacity of the treatment plant. The exchange capacity will increase over time to 53,000 acre-feet by year 2034, as population increases in the greater Bakersfield Metropolitan Area, as shown in Appendix 7.1-4 Exhibit 1. Averaging the treatment plant demand from 2014 to 2034 provides a value of about 50,000 acre-feet. Based on the history of exchanges between North Kern and ID4 (Appendix 7.1-4 Exhibit 2), about ½ of the historic treatment plant supply was provided by North Kern. Discussions with the ID4 Manager have confirmed that that relationship is expected to continue based on ID4's new demands and other exchange options. Therefore, for this analysis it is assumed that about ½ of the average demand over the ID4 build-out period, 25,000 acre-feet per year will be exchanged with North Kern. With the project about $116,000/year in savings is expected. The present value of the avoided operations and maintenance costs over the life of the project is $1,515,551 as shown in Table 12 – Project 1.

The total avoided O&M costs are expected to be $2,582,499.

7.1.2.3 Avoided Water Shortage Costs

If water cannot be purchased to make up for reduced surface supplies during droughts or other surface water system restrictions, and the water table continues to decline to a point it is not cost effective to pump groundwater, growers will have to fallow crops or not irrigate permanent crops potentially resulting in damages such as lost yield, or loss of established permanent crops like orchards or vineyards. During 2009 an analysis was done by Kern County Water Agency for Kern County on the value of crop losses due to the drought and reduced pumping from the Delta. The analysis drew from a State-wide analysis by Howitt, MacEwan, and Medellin-Azuara, published in Agricultural and Resources Economics Update, V. 12 No. 3 Jan/Feb 2009, "Economic Impacts of Reductions in Delta Exports on Central Valley Agriculture", by Giannini Foundation of Agricultural Economics, University of California. Based on the amount of damages occurring due to a predicted 35% water supply on the SWP, about $300 million in damages was expected to occur on 88,000 acres not irrigated or under-irrigated, which equates to about $3,400/acre. (Note the final allocation did go up to 40%, but late in the season acre-feet cropping plans were already in place).

Similarly an evaluation of the drought impacts of 1992 on crop production in Kern County, "Economic Impacts of the 1992 Drought Year, An Analysis of Economic Costs in Kern County", Prepared for Kern County Water Agency by Northwest Economics Associates, December 1994 (Appendix 9.1-1 to Attachment 9), found that the direct and indirect costs associated with lost acreage and crop production was $2,600/acre. This average varied significantly from $23,546/acre for permanent crops permanently abandoned to $1,225 for annual crops impacted that year only.

Based on crop water use requirements, for every 3.5 acre-feet lost, crops on about one acre are at risk. Considering the expected new supply available as a result of the project, 5,700 acre-feet/y, 5,700/3.5 = 1,629 acres would be fallowed or under-irrigated if alternative supplies are unavailable. This results in an economic impact of 3,400 x 1,629 = $5.5 million on an average annual basis would be the expected water shortage costs. The Howitt et. al. report was updated in September 2009, "Measuring the Employment Impact of Water Reductions", Richard Howitt, Josue Medellin-Azuara, Duncan MacEwan, Department of Agriculture and Resource Economics and Center for Watershed Sciences, University of California, Davis, September 28, 2009, to adjust for better information on job impacts related to agricultural production value lost. The revised report concludes that as many as 30 jobs are lost per million dollars in lost farm production. Therefore about 165 jobs will not be lost if the project were implemented. The present value of the avoided water shortage costs over the life of the project is not used in the benefit analysis as this could be viewed as either/or on water supply benefits analysis and it is anticipated growers will endeavor to find other sources of supply to stay in business. This information is provided to help explain the seriousness of the problems facing agriculture in the Poso Creek Region and is considered as

a qualitative benefit. The present value of the avoided water shortage costs over the life of the Project is $71,700,000.

7.1.2.4 Revenue from Water Sales

As defined under Section 7.2.1 above, about 5,700 acre-feet can be captured on an average annual basis. This water can be stored, accumulated and sold for dry year programs to third parties such as the DWR Environmental Water Account, or other areas in the State in critical need of supplies. Based on the need to keep as much supply in Kern County as possible, water sales are only expected to be temporary in nature or would be done if they eventually result in greater reliability to the region. In previous years Article 21 was regulated into banking projects and sold to the Environmental Water Account for prices ranging from $150 to $300 per acre-foot. This was done to help ensure the Environmental Water Account had a backup supply to utilize in response to a limitation in Delta pumping, thereby increasing overall supply reliability to Kern County. Since dry years occur about once every three years and wet years and normal two out of three, it is expected that 11,400 acre-feet can be sold for dry year programs like the EWA. At $200/acre-foot, the revenue from the sale would be about $2,280,000 every third year or over $760,000 on an average annual basis. The present value of the revenue from water sales over the life of the project is not used in the benefit analysis as this could be viewed as either /or on water supply benefits analysis. This information is provided to help explain the monetary value that could be realized by use of the Project. The present value of the revenue from water sales over the life of the Project is $9,933,200.

7.1.3 Distribution of Benefits and identification of Beneficiaries

Beneficiaries include, but are not limited to, Cawelo, Improvement District No. 4 of the Kern County Water Agency (ID4), Kern-Tulare Water District, and North Kern, which are all neighboring districts sharing a common groundwater basin. In addition several Disadvantaged Communities share the common groundwater basin and will receive benefits from the water stored using these facilities. The public at large also benefits from the ecosystem improvements associated with linking significant wildlife corridors.

7.1.4 Benefits Timeline

The estimated life of the project is 50 years. Benefits will begin in year 2013, after 2 years of construction, beginning in 2011.

7.1.5 Uncertainty of Benefits

The benefits defined are based on the best available information regarding availability of SWP Article 21 water and historic operations of the water districts involved. Changes impacting operations of the SWP and the ability to pump from the Delta could change the availability of supplies and therefore the water supply benefits estimated. This could be either more water or less. Better management of water is less likely to be impacted by Delta

operations, except to the extent Table A supplies are less available; there would be less water to move through the new Project. If Delta conveyance improvements move forward within ten years as expected, the benefits from the new facilities will be enhanced. Appendix 7.1-1 provides a summary of the variability in Article 21 water available for the Project.

7.1.6 Potential Adverse Effects

The Project will cause temporary disturbances of land surfaces during construction that will be mitigated, and there are no long-term adverse impacts expected as a result of the Project. Any unforeseen temporary impacts will be mitigated. Once operational the Project actually increases water supplies which helps offset adverse impacts from water shortages and dwindling supply availability to the region.

7.1.7 Summary of Findings

Project benefits will occur from avoided water supply purchase costs, avoided operations and maintenance costs, avoided water shortage costs and revenue from water sales. All of these benefits may occur in some combination, however to avoid double counting benefits, monetary benefits were computed for avoided water supply purchases and avoided operations and maintenance costs only. The sum of the two benefits is estimated to be $24,864,280 (Table 15 – Project1). Avoided water shortage costs, and revenue from water sales are only discussed qualitatively; monetized benefits claimed for these benefits are not included in the benefits analysis. However the value of the project can be looked at in many ways and the any combination of the above may be possible. The need is demonstrated by the consequences defined by not implementing the Project. Note Tables 13 and 14 are not included as they are not needed for this analysis.

7.1.8 Appendices

Appendix 7.1-1	Water Supply Accomplishments
Appendix 7.1-2	Water sales/purchases
Appendix 7.1-3	Cawelo PS-A Historic Pumping
Appendix 7.1-4	ID4 demands and historic exchanges

7.1.9 Tables

Table 7 – Project 1	Costs
Table 11 – Project 1	Annual Cost of Project
Table 12 – Project 1	Water Supply Benefits
Table 13 – Not Included	

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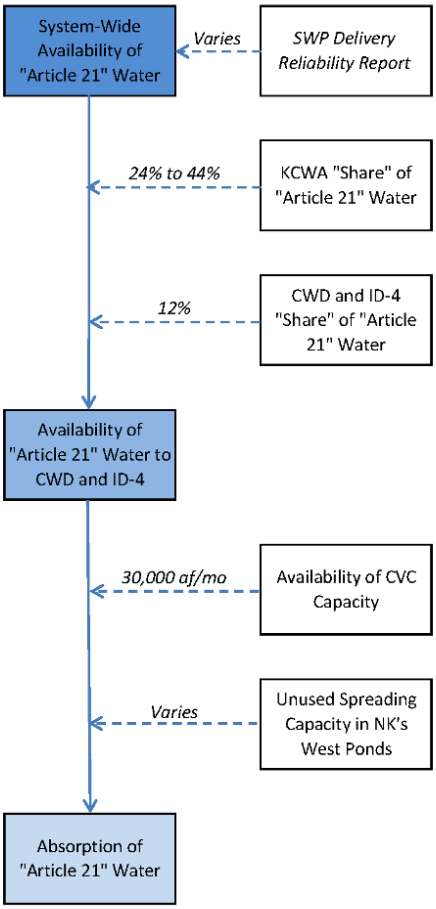
Memorandum

To: Files (073230)

From: Ronald J. Eid

Re: Cross Valley Canal to Calloway Canal Intertie
Water Supply Accomplishments

In the context of preparing the Poso Creek IRWMP (adopted in 2007), monthly operations studies were prepared over a long-term period of hydrology to evaluate the amount of SWP "Article 21" water that could be delivered to spreading basins in North Kern and thereby conserved. Based on these studies, it was estimated that the Cross Valley Canal to Calloway Canal Intertie (Project) would allow for diversion of about 5,700 acre-feet per year from this source of supply on average over the long term, with individual years ranging from zero to almost 30,000 acre-feet. Following is a flowchart of the operations study logic.



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As a generalization, available Article 21 water is compared to the capacity to convey it to the location of the Project and the Project's ability to absorb it, all on a monthly basis for the 41-year period of hydrology extending from 1954 through 1994[1]. Each of the elements in the flowchart is described following:

System-Wide Availability of "Article 21" Water – The IRWMP studies relied on the 2005 State Water Project Delivery Reliability Report (published in 2006), Study No 4[2]. Monthly data in support of the annual data in the Reliability Report were obtained from DWR.

KCWA "Share" of "Article 21" Water -- Kern County Water Agency's (KCWA) entitlement-based share of the system-wide availability of Article 21 water is about 24 percent. This is considered to be a minimum. To the extent that there are contractors who do not use any or all of their respective shares, more water would be available to the remaining contractors. In this regard, KCWA used an average of 44 percent of the Article 21 water diverted south of the Delta over the ten-year period extending from 1999 through 2008 (about 1.1 MAF diverted by KCWA out of about 2.5 MAF). These data are shown in the following table:

Historical Deliveries of SWP Article 21 Water

Calendar Year	Total South of Delta	KCWA	KCWA as a percent of Total
1999	158,070	58,241	37%
2000	308,785	78,908	26%
2001	48,145	23,233	48%
2002	43,115	21,951	51%
2003	59,828	27,891	47%
2004	218,496	86,513	40%
2005	731,083	453,078	62%
2006	630,769	256,634	41%
2007	309,973	99,861	32%
2008	2,729	0	0%
10-Yr Avg.	251,099	110,631	44%
10-Yr Totals	2,510,993	1,106,310	44%

Source: *The State Water Project Delivery Reliability Report 2009, August 2010, [Tables D.1 through D.10]*

[1] Spreading pond utilization data were not available prior to 1954 and the availability of Article 21 water only extended through 1994 at the time of the IRWMP studies.

[2] The 2005 SWP Delivery Reliability Report was the most recent available at the time of the Poso Creek IRWMP studies.

CWD and ID-4 "Share" of "Article 21" Water – When considered together, Cawelo and ID-4 have a combined entitlement-based share of KCWA's share of Article 21 of about 12 percent.

Availability of "Article 21" Water to CWD and ID-4 – Calculated as the product of the three above-described items, namely; System-Wide Availability of "Article 21" Water, KCWA "Share" of "Article 21" Water, and CWD and ID-4 "Share" of "Article 21" Water.

Availability of CVC Capacity -- The Cross Valley Canal capacity rights for Cawelo, ID-4, and North Kern total almost 500 cfs, as shown below:

Cawelo	170 cfs
ID-4	256 cfs
North Kern	72 cfs
Total:	498 cfs

The equivalent monthly flow volume is about 30,000 acre-feet. Article 21 water typically occurs in the months of January through March, which are off-peak months relative to the typical irrigation demand schedule. Given that the entitlement-based share of Article 21 water available to Cawelo and ID-4 never exceeds 5,500 acre-feet in a given month, CVC capacity is not likely to be an issue and was not further considered.

Unused Spreading Capacity in NK's West Ponds – North Kern's principal source of surface water is Kern River, which it has been diverting to spreading ponds (in addition to direct irrigation) for more than 50 years. Monthly records of this spreading have been maintained by North Kern and were the basis for the estimates of unused spreading capacity. About one-half of North Kern's spreading capacity can be served by gravity through the Calloway Canal (i.e., the west ponds). To avoid the additional pumping involved to reach North Kern's east ponds, the spreading ponds served by the Calloway Canal were the focus of this investigation.

Absorption of "Article 21" Water – Calculated as the lesser of the Availability of "Article 21" Water to CWD and ID-4, Availability of CVC Capacity, and Unused Spreading Capacity in NK's West Ponds.

SUMMARY

Three tables have been prepared in summary of the operations studies:

A. System-Wide Availability of "Article 21" Water
B. Availability of "Article 21" Water to CWD and ID-4
C. Absorption of "Article 21" Water

These three tables were prepared for each of two scenarios; one based on KCWA's "share" of Article 21 water at 24% (minimum) and one at 44% (actual average for 1999-2008). As shown on the third table of each set, the average annual potential absorption of Article 21 water amounted to about 8,200 acre-feet and 14,500 acre-feet for the two scenarios, respectively. This

is water that could be conveyed from the Aqueduct to North Kern and recharged in historically unused spreading capacity, assuming that the first priority for Article 21 water allocated to Cawelo and ID-4 is recharge in North Kern. In practice, both Cawelo and ID-4 have existing spreading capabilities which would be used prior to spreading in North Kern, all other things being equal. Therefore, the above-cited estimates of potential absorption of Article 21 water represent the "high end" and should be discounted to reflect Cawelo and ID-4 existing spreading capabilities.

Inspection of records respecting the availability of Kern River water vis-à-vis the projected availability of Article 21 water indicates that Kern River water has been spread in almost all of the months that Article 21 water is projected to be available. As for ID-4, this means that the Kern River channel is already wet and there is no room for ID-4 to spread Article 21 water in the River channel, which is the only recharge area available to ID-4 within its boundaries. This would have the effect of limiting ID-4 to its capacity in the Kern Fan banking projects. As for Cawelo, Kern River water would likely be available to them at these same times and would be used before Article 21 water, owing to lower pumping costs for the Kern River water. After considering the coincident availability of Kern River water, it is estimated that no more than one-half of the estimated potential absorption of Article 21 water would be taken within facilities presently available to Cawelo and ID-4, leaving the remaining one-half as the water supply benefit attributable to the proposed Project. i.e., ranging from 4,100 acre-feet to 7,250 acre-feet, based on KCWA's "share" of Article 21 water. The midpoint of this range is about 5,700 acre-feet.

Inspection of the 2009 SWP Delivery Reliability Report indicates reductions in the projected availability of Article 21 water relative to the 2005 report. These reductions would translate to reductions in the estimated absorption of Article 21 water under Project conditions. The Reliability Report projections have been and will likely continue to be, at least for the near term, a moving target, given the state of flux in the Delta. In the context of a 50-year planning horizon, it is not considered reasonable to use the highly impacted projections of "today" to evaluate project feasibility. With an anticipated Delta "fix" in place, it is likely that the 2005-based projections understate the availability of Article 21 water. Given these observations, it is considered reasonable to rely on the 2005-based projections for evaluation of Project feasibility.

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Memorandum

To: Files (073230) Attachment 7.1-2

From: Rick Iger

Re: Cross Valley Canal to Calloway Canal Intertie
Water Sales/Purchases

Based on a review of recent water sales/purchases by water districts within or nearby Kern County, the value/cost of acquiring alternative supplies was determined to be $300 per acre-foot.

Three recent sales have been reviewed:
Tehachapi-Cummings County Water District to West Kern Water District (Exhibit 1);
Tehachapi-Cummings County Water District to Kern Delta Water District (Exhibit 2); and
Dudley Ridge Water District to Tejon-Castac Water District (Exhibit 3).

Water sale prices have varied from $225/AF to $655/AF. These prices are linked to the State Water Project obligations of the selling district. In each case as the allocation of SWP Table A decreases the unit cost of the supply increases. The $300/AF was selected since it represents a 50% SWP allocation price and is within reason of what local growers would pay. Both the Tehachapi sales agreements are attached and a copy of a news article regarding the Tejon purchase.

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AGREEMENT FOR PURCHASE AND SALE OF STATE WATER PROJECT WATER

THIS AGREEMENT (Agreement) is executed in duplicate as of July 1, 2010 (Effective Date) by and between TEHACHAPI-CUMMINGS COUNTY WATER DISTRICT, a California county water district (Tehachapi), and WEST KERN WATER DISTRICT, a California county water district (West Kern);

W I T N E S S E T H:

WHEREAS, Tehachapi and West Kern are member units of the KERN COUNTY WATER AGENCY (Agency); and

WHEREAS, Tehachapi desires to sell to West Kern and West Kern desires to purchase from Tehachapi 2,000 acre feet of Tehachapi's State Water Project (SWP) Table 1 water available under its Contracts (Tehachapi Water Supply Contracts) allocated for 2010, 2011 and 2012 under the terms of this Agreement and the Board of Directors of Tehachapi has determined that such water is surplus for use within Tehachapi;

NOW, THEREFORE, IT IS HEREBY AGREED by and between Tehachapi and West Kern as follows:

1. Purpose of Agreement.

This Agreement is for the sale by Tehachapi and purchase by West Kern, through the Agency, of 2,000 acre feet of Tehachapi's SWP allocated Table 1 water available to Tehachapi in 2010 and 2,000 acre feet per year in 2011 and 2012 if the final allocation

made by the State each year (State Allocation) is greater than 35%.

2. Term.

This Agreement shall commence as of the Effective Date and remain in effect through December 31, 2012 and so long thereafter as necessary for each party to perform its obligations under this Agreement.

3. Relationship of Master Contract and Tehachapi Water Supply Contracts.

This Agreement is subject to the obligations and limitations imposed by the Master Contracts (KCWA/ M&I Water Supply Contracts), as amended, and the Tehachapi Water Supply Contracts (Tehachapi /KCWA SWP Contracts), as amended, and is intended to be in conformance and harmony with those contracts.

4. Water Available for Sale.

The water available for sale in 2010 is 2,000 acre feet of Tehachapi's allocated SWP Table 1 water. The water available for sale in 2011 and 2012 will be made available in years wherein the final State Allocation is greater than than 35%. If the water is available, West Kern will purchase 2,000 acre-feet in 2011 and 2012.

5. Point of Delivery.

Tehachapi, at its sole cost and expense, shall deliver all water available for sale to West Kern in Reach 13B of the Aqueduct (Point of Delivery). West Kern, at its sole cost and expense, shall make arrangements for the transportation of the water beyond the Point of Delivery and be responsible for all water losses associated therewith.

6. Scheduling.

The water to be delivered under this agreement to West Kern shall be delivered

prior to the end of the year in which the water is offered, but may be carried over by West Kern into the following year.

7. Payment for Water.

(a) Unit Rate.

West Kern shall pay Tehachapi for each acre foot of water sold under this Agreement a unit rate based on Tehachapi's actual melded (Ag and M&I) annual unit rate of allocated SWP Table 1 water, as determined by the Agency in the year of sale exclusive of (1) interest, penalties, late charges, or similar charges attributable to acts of Tehachapi, (2) Tehachapi's portion of the Ag Trust Fund Distribution and (3) any charges under Article 14 (b)(3) of the Tehachapi Ag Water Supply Contract or Article 13 (b)(3) of the Tehachapi M&I Water Supply Contract (shown on the Agency's statement of charges as "Incremental Variable OMP&R"), plus $100 per acre foot. As an example the Adjusted Unit Rate using the Agency's December 1, 2009 Statement of Charges for Calendar Year 2009 for Tehachapi Ag and M&I entitlement (Exhibit A) is as follows:

Adjusted Annual Obligation less Incremental Variable OMP&R

($1,462,892+$468,179) – ($283,141+81,167) = $1,566,763

Adjusted Table 1 Allocation	(1,720+6,000) = 7,720 AF
Adjusted Unit Rate	$1,566,763/7,720AF = $202.94/AF
Unit Rate:	$202.94AF + 100/AF = $302.94/AF
Example Amount Due:	$302.94/AF * 2,000 AF = $605,880

The same methodology shall be applied for 2010 and followed for 2011 and 2012 to determine the Unit Rate for those years.

(b) Time of Payment.

West Kern shall pay Tehachapi $605,880.00 within 30 days after the Effective Date for the 2,000 acre feet of water to be delivered in 2010, which amount shall be subject to adjustment under paragraph 7(c) hereof. In 2011 Tehachapi shall invoice West Kern for the water anticipated to be delivered in 2011 on the basis of the amount of water determined available by Tehachapi's latest available information from the Agency. Upon receiving the final State Allocation of 2011 Tehachapi shall determine the amount due by West Kern for the water to be delivered in 2011 on the basis of the SWP cost and allocation information available at that time and shall invoice West Kern for the balance due. West Kern shall pay the balance due within 30 days of receipt of such invoice. A like procedure shall be used for the payments due for water to be delivered in 2012.

(c) Adjustment of Price.

In January of 2011 Tehachapi shall recalculate the Adjusted Unit Rate for 2010 on the basis of the latest available information from the Agency and the actual State Allocation for 2010. If the final Adjusted Unit Rate is greater than the initial Adjusted Unit Rate, Tehachapi shall determine the actual payment due from West Kern to Tehachapi for water delivered to West Kern in 2010 and invoice West Kern for the additional amount due. West Kern

shall pay the additional amount due within 30 days after receipt of such invoice. If the final Adjusted Unit Rate is less than the initial Adjusted Unit Rate, Tehachapi shall determine the amount of West Kern's overpayment for water delivered to West Kern in 2010 and pay such amount to West Kern. Tehachapi shall follow a similar procedure to adjust any amounts payable from West Kern to Tehachapi or from Tehachapi to West Kern for water delivered in 2011 and 2012. There shall be no further adjustments irrespective of further adjustments by the State or the Agency, or both, with respect to SWP costs or State allocations.

8. Environmental Compliance.

Tehachapi has adopted a Negative Declaration regarding the sale of SWP water under the terms of this Agreement. West Kern shall act as the lead agency and perform any environmental review it deems appropriate under the California Environmental Quality Act with respect to matters not covered in the Negative Declaration adopted by Tehachapi.

9. Special Indemnity.

Tehachapi shall defend and indemnify West Kern against liability resulting from any action or proceeding instituted and maintained by any water user within the boundaries of Tehachapi seeking redress for any damage allegedly resulting from the sale of SWP water by Tehachapi to West Kern under the terms of this Agreement. West Kern shall defend and indemnify Tehachapi against liability resulting from any action or proceeding instituted and maintained by any water user within the boundaries of West Kern seeking redress for any damage allegedly resulting from the purchase of SWP water by West Kern from

Tehachapi under the terms of this Agreement.

10. General Indemnity.

Each party shall protect, defend, indemnify and hold harmless the other party, its officers, agents , servants, employees, and consultants, from and against any and all losses, claims, liens, demands and causes of action of every kind and character on account of personal injuries or death or damages to property and, without limitation by enumeration, all other claims or demands of every character occurring or in any manner incident to, connected with, or arising directly or indirectly out of the performance or non-performance by the indemnifying party, including actions or omissions related to environmental compliance.

11. Termination.

In the event either party is named as a defendant, respondent, real party in interest, or the like in any action or proceeding related to the transaction(s) contemplated by this Agreement (Named Party), and the Named Party is not held harmless, defended, or indemnified by the other party pursuant to other provisions of this Agreement, the Named Party shall have the option of (1) defending such action or proceeding, or (2) terminating the transaction(s) contemplated by this Agreement, in which event each of the parties will place the other in the same position such party would have been in absent such transaction, or as close thereto as reasonably possible under the circumstances.

12. Approvals.

Tehachapi and West Kern shall cooperate in securing any necessary or appropriate approval which is a condition precedent of either party to perform its obligations under

this Agreement.

13. Written Notice.

Any written notice required to be given by Tehachapi to West Kern shall be deemed given and delivered if (a) delivered personally to West Kern, (b) enclosed in an envelope addressed to West Kern and deposited in the United States mail, postage prepaid, (c) sent by Tehachapi to West Kern by facsimile, or (d) sent by Tehachapi to West Kern by e-mail. Any written notice to be given by West Kern to Tehachapi shall be deemed given and delivered if (a) delivered personally to Tehachapi, (b) enclosed in an envelope addressed to Tehachapi and deposited in the United States mail, postage prepaid, (c) sent to Tehachapi by facsimile, or (d) sent to Tehachapi by e-mail. A written notice by mail shall be deemed received by the addressee three days following the mailing thereof; all other written notices shall be deemed received when delivered or sent. The addresses of Tehachapi and West Kern for the giving of written notice are as follows:

To Tehachapi:	Mailing address: PO Box 326 Tehachapi, CA 93581 Facsimile address (661)-822-5122 E-mail address: jmartin@tccwd.com
To West Kern:	Mailing address: 800 Kern Street P. O. Box 1105 Taft, California 93268 Facsimile address: (661) 765-4271

E-mail address:
harry@wkwd.org

Tehachapi or West Kern, or both, may at any time and from time-to-time, by proper written notice to the other, change its address for the receipt of written notice.

14. Successors and Assigns.

The terms and provisions of this Agreement shall bind and shall inure to the benefit of the successors and assigns of Tehachapi and West Kern.

15. Force Majeure.

Except as otherwise provided in this Agreement, all obligations of Tehachapi and West Kern shall be suspended for so long as and to the extent that the performance thereof shall be prevented by earthquakes, fires, tornadoes, facility failures, floods, drownings, strikes, other casualties or acts of God, orders of court or governmental agencies having jurisdiction of the subject matter or other events or causes beyond the control of Tehachapi and West Kern.

16. Integration.

This Agreement contains the entire agreement between the parties hereto with the respect to the subject of this Agreement and supersedes any other agreement, whether written or oral, between the parties hereto relating to the same subject. Any prior representation, promise, or the like that is not contained in this Agreement shall be of no force or effect.

IN WITNESS WHEREOF, Tehachapi and West Kern have caused this Agreement to be executed as of the Effective Date.

Exhibit A

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
01-Dec-09	04-Jan-10

INVOICE NO. 21969

DEC 0 9 2009

Tehachapi-Cummings County Water District (M&I)
Post Office Box 326
Tehachapi, CA 93561

DR: 0002-1310
CR: 190B-4209

Statement of Charges
for Calendar Year 2009

Contract Basis for Charges: Article 13 (a)(b) of M&I Basic Contract dated December 16, 1966, Amendment No. 1 thereto dated October 25, 1979, and Amendment No. 2 thereto dated November 14, 1995.

Table 1 Entitlement		15,000 AF		
Basic Obligation [1]			1,218,469	
KWB Delta Water Rate Increase [2]			6,547	
Urban Rate Management			0	
Monterey Amendment Litigation Charge			3,104	
Delta Habitat Conservation & Conveyance Program			98,285	
Unadjusted Annual Obligation				1,326,405
Municipal Water Quality Investigation			16,339	
Incremental Variable OMP&R [3]			283,141	
Incremental Var OMP&R Past Cost Adjustment			0	
Long Term M&I Pool			0	
Undelivered Entitlement:				
Firm Ent Credit	$18.110300	(9,000) AF	(162,993)	
Surplus Ent Credit	$14.005210	0 AF	0	
Adjustments to Annual Obligation				136,486
Adjusted Annual Obligation		6,000 AF		$1,462,892
Less Amount Paid				1,462,635
Amount Due				257

[1] Contract Percentage of 0.012807 times Multiplier of $95,140,856 .
[2] Contract Percentage of 0.012807 times KWB Delta Rate increase of $511,235 .
[3] Reach 16 Delivery of 6,000 AF times Var Rate of $47.190100 .

Requested By	Prepared By	Approved By	Approved By
	LE	KM	

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

KERN COUNTY WATER AGENCY
P.O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
01-Dec-09	04-Jan-10

INVOICE NO. 21968

Tehachapi-Cummings County Water District (Ag)
Post Office Box 326
Tehachapi, CA 93561

DEC 0 3 2009

DR: 0002-1310
CR: 190B-4209

Statement of Charges
for Calendar Year 2009

Contract Basis for Charges: Article 14 (a)(b) of Agricultural Basic Contract dated December 16, 1966, Amendment No. 1 thereto dated January 10, 1980, and Amendment No. 2 thereto dated November 14, 1995.

Table 1 Entitlement		5,000 AF		
Basic Obligation [1]			407,583	
KWB Delta Water Rate Increase [2]			2,190	
Urban Rate Management			0	
Monterey Amendment Litigation Charge			890	
Delta Habitat Conservation & Conveyance Program			32,877	
Unadjusted Annual Obligation				443,540
Other			0	
Incremental Variable OMP&R [3]			81,167	
Incremental Var OMP&R Past Cost Adjustment			0	
Undelivered Entitlement:				
Firm Ent Credit	$18.110300	(2,580) AF	(46,725)	
Surplus Ent Credit	$14.005210	(700) AF	(9,804)	
Adjustments to Annual Obligation				24,639
Adjusted Annual Obligation		1,720 AF		$468,179
Less Amount Paid				468,095
Amount Due				84

[1] Contract Percentage of	0.004284	times Multiplier of	$95,140,856 .	
[2] Contract Percentage of	0.004284	times KWB Delta Rate increase of		$511,235 .
[3] Reach 16 Delivery of	1,720	AF times Var Rate of	$47.190100 .	

Requested By	Prepared By	Approved By	Approved By
	ve	HM	

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

TEHACHAPI-CUMMINGS
COUNTY WATER DISTRICT

Harry Cowan, President

John Martin, Secretary

WEST KERN WATER DISTRICT

President

Secretary

AGREEMENT FOR PURCHASE AND SALE OF STATE WATER PROJECT WATER

THIS AGREEMENT (Agreement) is executed in duplicate as of July 17, 2009 (Effective Date) by and between KERN DELTA WATER DISTRICT, a California water district (Kern Delta), and WEST KERN WATER DISTRICT, a California county water district (West Kern);

W I T N E S S E T H:

WHEREAS, Kern Delta and West Kern are member units of the KERN COUNTY WATER AGENCY (Agency); and

WHEREAS, Kern Delta desires to sell to West Kern and West Kern desires to purchase from Kern Delta 2,000 acre feet of Kern Delta's State Water Project (SWP) Table 1 water allocated for 2009, 2010 and 2011 under the terms of this Agreement and the Board of Directors of Kern Delta has determined that such water is not necessary for use within Kern Delta;

NOW, THEREFORE, IT IS HEREBY AGREED by and between Kern Delta and West Kern as follows:

1. Purpose of Agreement.

This Agreement is for the sale by Kern Delta and purchase by West Kern, through the Agency, of 2,000 acre feet of Kern Delta's SWP allocated Table 1 water available to Kern Delta in 2009, 2010 and 2011 if (a) the allocation made by the State as of March 15 of each

year (State Allocation) is less than 50%, (b) all other conditions are in Kern Delta's Negative Declaration are met, (c) the Kern Delta Board of Directors declares this water surplus to the District's needs, and (d) there are no material impediments to such, as determined in Kern Delta's sole discretion.

2. Term.

This Agreement shall commence as of the Effective Date and remain in effect through December 31, 2011 and so long thereafter as necessary for each party to perform its obligations under this Agreement.

3. Relationship of Master Contract and Kern Delta Water Supply Contract.

This Agreement is subject to the obligations and limitations imposed by the Master Contract (KCWA/State SWP Contract), as amended, and the Kern Delta Water Supply Contract (Kern Delta/KCWA SWP Contract), as amended, and is intended to be in conformance and harmony with those contracts.

4. Water Available for Sale.

The water available for sale in 2009 is 2,000 acre feet of Kern Delta's allocated SWP Table 1 water. The water available for sale in 2010 and 2011 is the first 2,000 acre feet of Kern Delta's allocated SWP Table 1 water if (a) the applicable State Allocation is less than 50%, (b) all other conditions in Kern Delta's Negative Declaration are met, (c) the Kern Delta Board of Directors declares this water surplus to the District's needs, and (d) there are no material impediments to such, as determined in Kern Delta's sole discretion. If Kern Delta's allocated SWP Table 1 water is less than 2,000 acre feet, the amount of water available for sale will be the amount allocated to Kern Delta. Kern Delta's allocated SWP

Table 1 water may be replaced with other Kern Delta supplies if and when environmental review is completed by Kern Delta, and to the extent Kern Delta has such supplies available, provided, however, that such replacement supply shall not place West Kern in a position worse than it otherwise would be in, absent such replacement supply.

5. Point of Delivery.

Kern Delta, at its sole cost and expense, shall deliver all water available for sale to West Kern in the Kern River Canal at the juncture of the Kern River Canal and the Buena Vista Canal (Point of Delivery) without losses if delivered between March 15 and August 15 of the year of sale. West Kern, at its sole cost and expense, shall make arrangements for the transportation of the water beyond the Point of Delivery and be responsible for all water losses associated therewith.

6. Scheduling.

The water to be delivered to West Kern in 2009 shall be delivered prior to August 15, 2009 if possible. West Kern shall submit to Kern Delta an initial monthly delivery schedule for 2010 on or before December 15, 2009 and a like schedule for 2011 on or before December 15, 2010. The delivery schedules shall provide for deliveries between March 15 and August 15 of each year and are subject to Kern Delta's approval. The initial schedules may be adjusted by West Kern with Kern Delta's consent based on its actual delivery requirements for the year. If West Kern requests that the water be delivered outside of March 15 through August 15, West Kern shall be responsible for all costs, expenses, and losses associated with such delivery.

7. Payment for Water.

(a) Unit Rate.

West Kern shall pay Kern Delta for each acre foot of water sold under this Agreement a unit rate based on Kern Delta's actual annual unit rate of allocated SWP Table 1 water, as determined by the Agency in the year of sale exclusive of interest, penalties, late charges, or similar charges attributable to acts of Kern Delta and exclusive of Kern Delta's portion of the Ag Trust Fund Distribution (Adjusted Unit Rate), plus $100 per acre foot. The Adjusted Unit Rate and the amount due for 2009 using the Agency's June 1, 2009 Statement of Charges for Calendar Year 2009 for Kern Delta (Exhibit A) is as follows:

Adjusted Annual Obligation	$1,532,617
Adjusted Table 1 Allocation	10,200 AF
Adjusted Unit Rate	$1,532,617/10,200 AF = $150.26/AF
Unit Rate:	$150.26 AF + 100/AF = $250.26/AF
Amount Due:	$250.26/AF * 2,000 AF = $500,520

The same methodology shall be followed for 2010 and 2011 to determine the Unit Rate for those years.

(b) Time of Payment.

West Kern shall pay Kern Delta $500,520.00 within 30 days after the Effective Date for the 2,000 acre feet of water to be delivered in 2009, which amount shall be subject to adjustment under paragraph 7(c) hereof. In

January of 2010 Kern Delta shall invoice West Kern for the water anticipated to be delivered in 2010 on the basis of the latest available information from the Agency and assuming a State Allocation in 2010 of 50%. One-half of such billing shall be paid by West Kern within 30 days of receipt of such invoice. In June of 2010 Kern Delta shall determine the balance due by West Kern for the water to be delivered in 2010 on the basis of the SWP cost and allocation information available at that time and shall invoice West Kern for the balance due. West Kern shall pay the balance due within 30 days of receipt of such invoice. A like procedure shall be used for the payments due for water to be delivered in 2011.

(c) Adjustment of Price.

In January of 2010 Kern Delta shall recalculate the Adjusted Unit Rate for 2009 on the basis of the latest available information from the Agency and the actual State Allocation for 2009. If the final Adjusted Unit Rate is greater than the initial Adjusted Unit Rate, Kern Delta shall determine the actual payment due from West Kern to Kern Delta for water delivered to West Kern in 2009 and invoice West Kern for the additional amount due. West Kern shall pay the additional amount due within 30 days after receipt of such invoice. If the final Adjusted Unit Rate is less than the initial Adjusted Unit Rate, Kern Delta shall determine the amount of West Kern's overpayment for water delivered to West Kern in 2009 and pay such amount to West Kern. Kern Delta shall follow a similar procedure to adjust any amounts payable

from West Kern to Kern Delta or from Kern Delta to West Kern for water delivered in 2010 and 2011. There shall be no further adjustments irrespective of further adjustments by the State or the Agency, or both, with respect to SWP costs or State allocations.

8. Environmental Compliance.

Kern Delta has adopted a Negative Declaration regarding the sale of SWP water under the terms of this Agreement. West Kern shall act as the lead agency and perform any environmental review it deems appropriate under the California Environmental Quality Act with respect to matters not covered in the Negative Declaration adopted by Kern Delta.

9. Special Indemnity.

Kern Delta shall defend and indemnify West Kern against liability resulting from any action or proceeding instituted and maintained by any water user within the boundaries of Kern Delta seeking redress for any damage allegedly resulting from the sale of SWP water by Kern Delta to West Kern under the terms of this Agreement. West Kern shall defend and indemnify Kern Delta against liability resulting from any action or proceeding instituted and maintained by any water user within the boundaries of West Kern seeking redress for any damage allegedly resulting from the purchase of SWP water by West Kern from Kern Delta under the terms of this Agreement.

10. General Indemnity.

Each party shall protect, defend, indemnify and hold harmless the other party, its officers, agents , servants, employees, and consultants, from and against any and all losses, claims, liens, demands and causes of action of every kind and character on account of

personal injuries or death or damages to property and, without limitation by enumeration, all other claims or demands of every character occurring or in any manner incident to, connected with, or arising directly or indirectly out of the performance or non-performance by the indemnifying party, including actions or omissions related to environmental compliance.

11. Termination.

In the event either party is named as a defendant, respondent, real party in interest, or the like in any action or proceeding related to the transaction(s) contemplated by this Agreement (Named Party), and the Named Party is not held harmless, defended, or indemnified by the other party pursuant to other provisions of this Agreement, the Named Party shall have the option of (1) defending such action or proceeding, or (2) terminating the transaction(s) contemplated by this Agreement, in which event each of the parties will place the other in the same position such party would have been in absent such transaction, or as close thereto as reasonably possible under the circumstances.

12. Approvals.

Kern Delta and West Kern shall cooperate in securing any necessary or appropriate approval which is a condition precedent of either party to perform its obligations under this Agreement.

13. Written Notice.

Any written notice required to be given by Kern Delta to West Kern shall be deemed given and delivered if (a) delivered personally to West Kern, (b) enclosed in an envelope addressed to West Kern and deposited in the United States mail, postage prepaid, (c) sent

by Kern Delta to West Kern by facsimile, or (d) sent by Kern Delta to West Kern by e-mail. Any written notice to be given by West Kern to Kern Delta shall be deemed given and delivered if (a) delivered personally to Kern Delta,(b) enclosed in an envelope addressed to Kern Delta and deposited in the United States mail, postage prepaid, (c) sent to Kern Delta by facsimile, or (d) sent to Kern Delta by e-mail. A written notice by mail shall be deemed received by the addressee three days following the mailing thereof; all other written notices shall be deemed received when delivered or sent. The addresses of Kern Delta and West Kern for the giving of written notice are as follows:

To Kern Delta:	Mailing address: 501 Taft Highway Bakersfield, California 93307 Facsimile address: (661)-836-1705 E-mail address: mulkay@kerndelta.org
To West Kern:	Mailing address: 800 Kern Street P. O. Box 1105 Taft, California 93268 Facsimile address: (661) 765-4271 E-mail address: jerry@wkwd.org

Kern Delta or West Kern, or both, may at any time and from time-to-time, by proper written notice to the other, change its address for the receipt of written notice.

14. Successors and Assigns.

The terms and provisions of this Agreement shall bind and shall inure to the benefit of the successors and assigns of Kern Delta and West Kern.

15. Force Majeure.

Except as otherwise provided in this Agreement, all obligations of Kern Delta and West Kern shall be suspended for so long as and to the extent that the performance thereof shall be prevented by earthquakes, fires, tornadoes, facility failures, floods, drownings, strikes, other casualties or acts of God, orders of court or governmental agencies having jurisdiction of the subject matter or other events or causes beyond the control of Kern Delta and West Kern.

16. Integration.

This Agreement contains the entire agreement between the parties hereto with the respect to the subject of this Agreement and supersedes any other agreement, whether written or oral, between the parties hereto relating to the same subject. Any prior representation, promise, or the like that is not contained in this Agreement shall be of no force or effect.

IN WITNESS WHEREOF, Kern Delta and West Kern have caused this Agreement to be executed as of the Effective Date.

KERN DELTA WATER DISTRICT

By _____

WEST KERN WATER DISTRICT

By _____

RN COUNTY WATER AGEN Y
O. BOX 58
BAKERSFIELD, CA 93302-0058
PHONE: 661/634-1400 FAX: 661/634-1428

INVOICE DATE	DUE DATE
01-Jun-09	01-Jul-09

INVOICE NO. 21160

Exhibit A

Kern Delta Water District
Post Office Box 49216
Bakersfield, CA 93382

DR: 0002-1310
CR: 190B-4209

Statement of Charges
for Calendar Year 2009

Contract Basis for Charges: Article 14 (a)(b) of Basic Contract dated October 26, 1972, Amendment No. 1 thereto dated December 13, 1979, and Amendment No. 2 thereto dated November 14, 1995.

Table 1 Entitlement		30,000 AF		
Basic Obligation [1]			1,720,001	
KWB Delta Water Rate Increase [2]			9,219	
Urban Rate Management			0	
Monterey Amendment Litigation Charge			5,276	
Delta Habitat Conservation & Conveyance Program			138,391	
Unadjusted Annual Obligation				1,872,887
Other			0	
Incremental Variable OMP&R			0	
Incremental Var OMP&R Past Cost Adjustment			0	
Undelivered Entitlement:				
Firm Ent Credit	$18.110300	(15,300) AF	(277,088)	
Surplus Ent Credit	$14.040519	(4,500) AF	(63,182)	
Adjustments to Annual Obligation				(340,270)
Adjusted Annual Obligation		10,200 AF		$1,532,617
Less Amount Paid				923,562
Amount Due				609,056 ✓

[1] Contract Percentage of 0.018033 times Multiplier of $95,380,721 .
[2] Contract Percentage of 0.018033 times KWB Delta Rate increase of $511,235 .

Requested By	Prepared By	Approved By	Approved By
	UL	C	

☐ ORIGINAL ☐ REMITTANCE ☐ FILE ☐ ACCOUNTING ☐ NUMERICAL CONTROL

Kings farmers set to sell $11.7M in water rights
Hanford Sentinel-11/9/10
By Seth Nidever

In the threatened world of Westside agriculture, two more farmers have decided to sell water rights to urban development interests in Southern California.

The deal would send 1,998 acre-feet of water from two Kings County growers to Tejon Ranch Co. for $5,850 per acre-foot, or $11.7 million. The water would likely be used for urban development Tejon Ranch Co. has planned along Interstate 5 south of Bakersfield.

An acre-foot of water is the amount of water that would cover an acre of land to a depth of one foot. The average family uses about an acre-foot of water per year.

Both growers are in the Dudley Ridge Water District, located in remote western Kings County. The district's board of directors will consider the proposed sale at their next meeting on Dec. 8 at the office of Provost & Pritchard Consulting Group in Fresno, said Rick Besecker, district treasurer.

The sellers are 3R Land and Development and Don Jackson, Besecker said. Jackson and an official from 3R did not return phone calls seeking comment.

Other district growers have the right of first refusal on the sale, meaning one or more of them could match Tejon's offer and keep the water in the district. More than 80 percent of the district's irrigated acreage is owned by Paramount Farms and Sandridge Partners. The sale is expected to go through without objection, Besecker said.

Sandridge, a Bay Area company, made news last year for selling $73 million in permanent water rights from the district to the Mojave Water Agency in Southern California.

That was followed later in the year by another grower, Steve Jackson, selling 884 acres of land and its $14.3 million in water rights to the Irvine Ranch Water District, also in Southern California.

Steve Jackson is Don Jackson's son.

The dynamics of Westside water haven't changed much, Jackson said. Environmental problems in the Sacramento-San Joaquin River Delta are limiting flows to Kings and Fresno counties, not to mention cities that also count on the deliveries. Some of the limitations are designed to protect the delta smelt, a small endangered fish biologists consider to be a key indicator of the overall health of the delta.

Environmentalists believe that siphoning too much water out of the delta is the main problem. Farmers and some cities who depend on those supplies suggest that other issues, such as contaminated runoff from delta-area cities, are more relevant.

Jackson isn't betting that flows will increase under new Gov. Jerry Brown, but he's reserving judgment until Brown takes over in January.

Even with last year's above-average snowpack, Jackson only got 50 percent of his historic water contract delivered.

"We don't see much hope of going back to [the levels] we had pre-delta smelt," Jackson said.#

http://www.hanfordsentinel.com/news/local/article_525bf8c8-ec31-11df-93ac-001cc4c002e0.html

Geotechnical
Environmental
Water Resources
Ecological

GEI Consultants

Memorandum

To: Files (073230) Appendix 7.1-3

From: Rick Iger

Re: Cross Valley Canal to Calloway Canal Intertie
Water Better Managed

Based on a review of pumping quantities and costs from Cawelo Water District for Pump Station A (PS-A), the average historic deliveries from Cawelo were determined to be 17,600 acre-feet per year after deducting historic use of PS-A by ID4, as addressed in Appendix 7.1-4.

Three tables are provided showing historic use and costs:
Cawelo PS-A Historic Pumping, 1982-2009 – Exhibit 1;
Cawelo PS-A electrical cost and usage – Exhibit 2; and
Cross Valley Canal power and operations charges – Exhibit 3.

Exhibit 1 shows the monthly, annual and average Cawelo PS-A use for the period 1982-2009. The most recent ten year period was chosen since it reflects current water availability trends. Since ID4 has also used PS-A and the ID4 analysis is separated from the Cawelo analysis, a deduction was taken from the average. Appendix 7.1-4 shows the ID4 exchange with North Kern Water Storage District averaging 14,400 acre-feet. Since ID4 has other means of getting water to North Kern by exchanging with others only about 50% of the North Kern payback is done by using PS-A, therefore 7,200 acre-feet are deducted from the PS-A use to get at a separate Cawelo use.

Exhibit 2 shows the energy requirements and costs for PS-A at $8.50/AF requiring 68kilo watt hours (kWh) per acre-foot pumped.

Exhibit 3 shows the CVC costs for pumping, operations, maintenance and administration. CVC Pumping Plant 7 has a lift of about 20 feet and a cost of $3.63/AF, requiring about 40 kWh/AF.

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Pump Station A Deliveries

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	1,614.54	0.00	0.00	0.00	4,381.49	4,091.90	1,098.84	150.74	0.00	0.00	0.00	0.00	11,337.51
2006	0.00	3,117.00	8,887.93	2,473.39	0.00	0.00	4,421.15	9,024.79	5,147.10	9,423.00	9,536.52	6,821.15	58,852.03
2005	472.00	1,531.00	5,950.41	9,199.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17,152.41
2004	0.00	2,423.80	4,534.21	0.00	0.00	5,553.71	6,311.40	2,762.97	0.00	0.00	0.00	0.00	21,586.09
2003	0.00	0.00	771.57	107.11	0.00	1,602.64	0.00	0.00	0.00	0.00	626.78	0.00	3,108.10
2002	0.00	1,755.37	166.61	150.74	329.26	8,294.87	9,221.15	9,838.01	6,795.37	8,160.00	40.00	0.00	44,751.38
2001	0.00	0.00	0.00	0.00	0.00	1,249.59	924.30	454.21	2,277.02	0.00	0.00	0.00	4,905.12
2000	0.00	0.00	0.00	1,572.89	4,962.64	4,770.25	5,085.62	4,393.39	1,253.55	0.00	0.00	0.00	22,038.34
1999	0.00	0.00	1,549.00	6,006.00	9,445.00	9,361.98	8,957.35	8,253.22	8,052.89	9,574.21	3,399.67	0.00	64,599.32
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	607.00	1,572.00	30.00	0.00	2,209.00
1993	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1991	12.00	4,117.00	5,015.00	3,818.00	4,348.00	5,090.00	0.00	0.00	0.00	0.00	0.00	0.00	22,400.00
1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1989	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1986	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1985	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1984	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00
1983	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
1982	0.00	56.00	1,406.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,462.00
1981	476.00	248.00	0.00	1,279.00	4,760.00	8,360.00	9,047.00	9,376.00	7,740.00	4,433.00	926.00	0.00	46,645.00
1980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,162.00	6,129.00	3,477.00	3,404.00	14,172.00
1978	0.00	0.00	67.00	0.00	0.00	0.00	248.00	4,759.00	1,627.00	0.00	0.00	0.00	6,701.00
1977	0.00	279.00	412.00	0.00	0.00	446.00	1,099.00	1,978.00	813.00	424.00	99.00	0.00	5,550.00
1976	0.00	657.00	1,567.00	2,452.00	3,951.00	6,925.00	8,867.00	7,030.00	1,643.00	0.00	629.00	1,914.00	35,635.00
(1976-2008)	79	430	919	820	975	1,689	1,675	1,758	1,125	1,203	569	368	11,610
max.	1,615	4,117	8,888	9,199	9,445	9,362	9,221	9,838	8,053	9,574	9,537	6,821	64,599
	27	68	147	152	156	155	152	163	133	158	158	113	
1998-2007	209	883	2,186	1,951	1,912	3,492	3,602	3,488	2,353	2,716	1,360	682	24,833

PS/A	**Last time ran**		**2007**
MONTH OF DELIVERY	Pumped Ac.-Ft.	kWh / Ac.-Ft.	Cost / Ac.-Ft.
Jan	1614.54	66.57	7.25
Feb	0	0.00	0.00
Mar	0	0.00	0.00
Apr	0	0.00	0.00
May	4381.49	65.31	6.92
Jun	4091.9	69.14	7.76
Jul	1098.84	63.86	10.73
Aug	150.74	98.06	35.54
Sep	0	0.00	0.00
Oct	0	0.00	0.00
Nov	0	0.00	0.00
Dec	0	0.00	0.00
Sum	Avg.	Avg.	
	11337.51	68.41	8.79
Summer :	9722.97	67.78	8.46
Winter :	1614.54	72.19	10.75

2009
KCWA

Kern County Water Agency
Cross Valley Canal

Power Billing Rates per Acre Foot
Forward Flow

Winter Cumulative 2.25 4.50 6.75 9.00 11.25 13.50 15.75

	Pumping Plant 1	Pumping Plant 2	Pumping Plant 3	Pumping Plant 4	Pumping Plant 5	Pumping Plant 6	Pumping Plant 7
Winter Rates	$ 2.25	$ 2.25	$ 2.25	$ 2.25	$ 2.25	$ 2.25	$ 2.25
Summer Rates	$ 3.25	$ 3.25	$ 3.25	$ 3.25	$ 5.00	$ 5.00	$ 5.00

Summer Cumulative 3.25 6.50 9.75 13.00 18.00 23.00 28.00

Conveyance Fees per Acre Foot
Forward Flow and Reverese Flow

	Reach 1	Reach 2	Reach 3	Extension
Conveyance Fees	$ 1.00	$ 1.00	$ 1.00	$ 1.00

New participants are assessed an early implentation conveyance fee of $1.00 an acre foot per reach for water conveyed in forward and/or reverse flow.

Excess Wheeling Fees per Acre Foot
Forward Flow and Reverese Flow

	Reach 1	Reach 2	Reach 3	Extension
Excess Wheeling Fees	$ 1.00	$ 1.00	$ 1.00	$ 1.00

Participants are assessed an excess wheeling fee of $1.00 an acre foot per reach where they conveyed water in excess of their contractual capacity.

Third Party Conveyance Fees
Forward Flow and Reverese Flow

Pool	Administration *	Operations & Maintenance	Capital Replacement	Total	Cumulative Rate
1st Pool	$ 1.20	$ 1.20	$ 0.90	$ 3.30	$ 3.30
2nd Pool		1.20	0.90	$ 2.10	5.40
3rd Pool		1.20	0.90	$ 2.10	7.50
4th Pool		1.20	0.90	$ 2.10	9.60
5th Pool		1.20	0.90	$ 2.10	11.70
6th Pool		1.20	0.90	$ 2.10	13.80
7th Pool		1.20	0.90	$ 2.10	15.90
8th Pool		1.20	0.90	$ 2.10	18.00

* $1.20 Administration charge is assessed for the first pool of entry only.

7.1-3
Exhibit 3

Geotechnical
Environmental
Water Resources
Ecological

GEI Consultants

Memorandum

To: Files (073230) Appendix 7.1-4

From: Rick Iger

Re: Cross Valley Canal to Calloway Canal Intertie
Water Better Managed – ID4

Based on a review of pumping quantities and costs from Improvement District Number 4 of the Kern County Water Agency the Henry C. Garnett Water Purification Plant treats about 30,000 acre-feet per year as shown on Exhibit 1 from the ID4 Report on Water Conditions.

Three tables are provided showing historic use and costs:
History of Purification Plant Water Use, 1975-2009 – Exhibit 1;
Project Participant Build-out – Exhibit 2; and
Historical Deliveries of SWP Water from ID4 to North Kern – Exhibit 3.

Exhibit 1 shows the annual ID4 Henry C. Garnett Water Purification Plant water sources for the period 1975-2009. Except for the first couple years of operations, the purification plant demands have averaged about 30,000 acre-feet per year.

Exhibit 2 shows the build-out schedule for the ID4 Participants at 53,000 acre-feet by 2034. The average from the current demand to 2034 is about 50,000 acre-feet.

Exhibit 3 shows the ID4/North Kern Water Storage District historic exchange quantity averaging 14,362 acre-feet from 1998 to 2007. Not all the exchange is run through PS-A since ID4 has other exchange partners that can pay North Kern with Kern River water. Since ID4 has also used PS-A and the ID4 analysis is separated from the Cawelo analysis, a deduction was taken from the average pumped at PS-A. Since ID4 has other means of getting water to North Kern by exchanging with others only about 50% of the North Kern payback is done by using PS-A, there for 7,200 acre-feet are deducted from the PS-A use to get at a separate Cawelo use.

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App 7.1-4 Exhibit 1

ID4 History of Purification Plant Water Use by Sources

Year	State Water Project	State Water Project by Exchange[1]	Friant-Kern[2]	Recovered	Total
1975	-	-	-	-	-
1976	-	-	-	-	-
1977	15,950	-	-	-	15,950
1978	8,329	15,607	-	-	23,936
1979	5,347	21,078	-	-	26,425
1980	4,288	18,551	-	-	22,839
1981	20,457	3,407	-	-	23,864
1982	3,584	21,488	-	-	25,072
1983	1,287	23,317	-	-	24,604
1984	21,068	5,200	-	-	26,268
1985	942	23,331	-	-	24,273
1986	1,487	22,967	-	-	24,454
1987	1,974	23,534	-	-	25,508
1988	7,971	21,360	-	-	29,331
1989	11,844	15,593	-	-	27,437
1990	24,728	2,694	-	-	27,422
1991	2,467	9,146	-	7,719	19,332
1992	6,830	8,442	-	12,241	27,513
1993	4,653	23,414	2,883	-	30,950
1994	4,030	20,680	715	4,186	29,611
1995	2,528	28,883	-	222	31,633
1996	24	28,527	1,387	-	29,938
1997	-	25,416	7,980	-	33,396
1998	-	26,510	1,906	-	28,416
1999	-	28,340	-	-	28,340
2000	132	29,023	-	-	29,155
2001	3,503	7,579	-	15,810	26,892
2002	5,228	21,327	-	1,194	27,749
2003	9,826	14,011	-	2,111	25,948
2004	4,282	14,419	-	6,693	25,394
2005	1,967	24,320	-	787	27,074
2006	7,160	18,412	-	-	25,572
2007	4,826	14,874	-	7,301	27,001
2008	1,462	25,000	-	-	26,462
2009	-	28,335	-	-	28,335
TOTAL	**188,174**	**614,785**	**14,871**	**58,264**	**876,094**

[1] *SWP water by exchange with Kern River interests.*

[2] *Acquired from Friant-Kern interests.*

App 7.1-4 Exhibit 2

Exhibit D
Project Participant Buildout Schedule

1	2	3	4	5	6	7
Fiscal Year	California Water Service	City of Bakersfield	East Niles CSD	North of the River MWD	Improvement District No. 4	Total
Entitlement -AF/YR						
Total Annual Entitlement	20,500	6,500	11,000	15,000	0	53,000
% of Entitlement	38.7%	12.3%	20.8%	28.3%	0.0%	100.0%
Capacity - MGD						
Total Peaking Capacity	30.0	6.0	13.8	22.1	0.0	71.9
% of Capacity	41.7%	8.3%	19.2%	30.7%	0.0%	100.0%
Delivery Schedule -AF/YR						
2004-05	11,500	6,500	6,000	8,500	0	32,500
2005-06	12,500	6,500	6,000	10,000	0	35,000
2006-07	13,000	6,500	7,500	10,100	0	37,100
2007-08	15,500	6,500	7,950	10,200	0	40,150
2008-09	16,000	6,500	8,400	10,300	0	41,200
2009-10	16,500	6,500	8,850	10,400	0	42,250
2010-11	17,000	6,500	9,300	10,500	0	43,300
2011-12	17,500	6,500	9,750	10,600	0	44,350
2012-13	18,000	6,500	10,200	10,700	0	45,400
2013-14	18,500	6,500	11,000	10,800	0	46,800
2014-15	19,000	6,500	11,000	10,900	0	47,400
2015-16	19,500	6,500	11,000	11,000	0	48,000
2016-17	20,000	6,500	11,000	11,100	0	48,600
2017-18	20,500	6,500	11,000	11,200	0	49,200
2018-19	20,500	6,500	11,000	11,300	0	49,300
2019-20	20,500	6,500	11,000	11,400	0	49,400
2020-21	20,500	6,500	11,000	11,500	0	49,500
2021-22	20,500	6,500	11,000	11,600	0	49,600
2022-23	20,500	6,500	11,000	11,800	0	49,800
2023-24	20,500	6,500	11,000	12,000	0	50,000
2024-25	20,500	6,500	11,000	12,250	0	50,250
2025-26	20,500	6,500	11,000	12,500	0	50,500
2026-27	20,500	6,500	11,000	12,750	0	50,750
2027-28	20,500	6,500	11,000	13,000	0	51,000
2028-29	20,500	6,500	11,000	13,250	0	51,250
2029-30	20,500	6,500	11,000	13,500	0	51,500
2030-31	20,500	6,500	11,000	13,750	0	51,750
2031-32	20,500	6,500	11,000	14,000	0	52,000
2032-33	20,500	6,500	11,000	14,250	0	52,250
2033-34	20,500	6,500	11,000	14,500	0	52,500
2034-35	20,500	6,500	11,000	15,000	0	53,000

App 7.1-4 Exhibit 3

Historical Deliveries of SWP Water
from ID-4 to North Kern
(values in acre-feet)

Calendar Year	Amount
1998	0
1999	64,000
2000	21,921
2001	2,714
2002	17,664
2003	916
2004	0
2005	14,886
2006	21,519
2007	0
10-yr Avg. (1998-2007)	14,362

Source: *2009 Annual Hydrographic Report for Kern River (p 97)*

Table 7 - Project 1 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 1 - Cross Valley Canal to Calloway Canal Intertie

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration	***$ -***	***$26,900***	***$26,900***	
	Task 2 - Labor Compliance Program	***$15,200***	***$ -***	***$15,200***	
	Task 3 - Reporting	***$30,400***	***$ -***	***$30,400***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$4,800*	*$ -*	*$4,800*	
	Task 3.2 - Quarterly Reporting	*$15,400*	*$ -*	*$15,400*	
	Task 3.3 - Annual Reporting	*$5,100*	*$ -*	*$5,100*	
	Task 3.4 - Final Report	*$5,100*	*$ -*	*$5,100*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$ -***	***$ -***	***$ -***	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$ -***	***$ -***	***$ -***	
	Task 6 - Design	***$50,000***	***$ -***	***$50,000***	
	Task 7 - Environmental Documentation	***$16,200***	***$ -***	***$16,200***	
	Task 8 - Permitting	***$30,100***	***$ -***	***$30,100***	
	Task 8.1 - Permits and Fees	*$14,100*	*$ -*	*$14,100*	
	Task 8.2 - Verify Permitting Compliance	*$16,000*	*$ -*	*$16,000*	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	***$ -***	***$ -***	***$ -***	

Table 7 - Project 1 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 1 - Cross Valley Canal to Calloway Canal Intertie

	Budget Category	(a) Non-State Share* (Funding Match)	(b) Requested Grant Funding	(d) Total	(e) % Funding Match
	Task 10 - Construction	***$2,262,400***	***$7,373,800***	***$9,636,200***	
	Task 10.1 - Mobilization and Site Prep	*$ -*	*$261,100*	*$261,100*	
	Mobilization/Demobilization	$ -	$165,400	$165,400	
	Bonding (1% of Construction Cost+Permits and Fees)	$ -	$95,700	$95,700	
	Task 10.2 - Project Construction	*$2,262,400*	*$7,025,700*	*$9,288,100*	
	Utility Relocations (Shell Oil and Southern California Gas)	$ -	$96,700	$96,700	
	Intertie weir at CVC - 120" RCP (Watertight Culvert Pipe) - Materials	$ -	$49,700	$49,700	
	Big West Crossing - Double 120" RCP (Watertight Culvert Pipe) - Materials	$ -	$71,400	$71,400	
	Westside Parkway crossing - Double 120" RCP (Watertight Culvert Pipe) - Materials	$332,100	$ -	$332,100	
	Westside Parkway crossing (Double 120" RCP) - Installation	$473,800	$ -	$473,800	
	Temporary Facilities	$26,000	$ -	$26,000	
	Survey and Staking	$ -	$25,000	$25,000	
	Calloway Canal Crossing - Triple 120" RCP (Watertight Culvert Pipe) - Materials	$ -	$93,100	$93,100	
	General Conditions	$ -	$56,400	$56,400	
	Generation and Import of Fill Material	$ -	$2,491,000	$2,491,000	
	Misc. Dirtwork for Concrete Structures	$ -	$217,600	$217,600	
	Intertie canal - CVC to Westside Parkway - Dirtwork	$ -	$195,500	$195,500	
	Intertie canal - Westside Parkway to Big West Crossing - Dirtwork	$ -	$347,700	$347,700	
	Dewatering	$ -	$79,800	$79,800	

Table 7 - Project 1 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 1 - Cross Valley Canal to Calloway Canal Intertie

	Budget Category	(a) Non-State Share* (Funding Match)	(b) Requested Grant Funding	(d) Total	(e) % Funding Match
	Back-up weir in CVC	$ -	$82,600	$82,600	
	CVC Dirtwork	$ -	$71,400	$71,400	
	Intertie weir at CVC - Installation	$ -	$60,500	$60,500	
	Big West Crossing (Double 120" RCP) - Installation	$ -	$85,200	$85,200	
	Intertie weir at CVC - 120" RCP - Installation	$ -	$53,300	$53,300	
	Calloway Canal Crossing - Triple 120" RCP - Installation	$ -	$85,200	$85,200	
	Calloway Canal Weir	$ -	$82,600	$82,600	
	Intertie canal - CVC to Westside Parkway - Lining	$ -	$114,000	$114,000	
	Intertie canal - Westside Parkway to Big West Crossing - Lining	$ -	$318,400	$318,400	
	Reinforced Concrete Canal Lining Bowls (3000 SF)	$ -	$125,700	$125,700	
	CVC - Lining	$ -	$104,100	$104,100	
	Railroad Crossing - Double 120" RCP (Pressure Culvert Pipe - Class V) - Materials	$ -	$416,000	$416,000	
	Intertie canal - Big West Crossing to Railroad Crossing - Dirtwork	$355,800	$ -	$355,800	
	Railroad Crossing - Double 120" RCP - Class V - Installation	$ -	$1,689,600	$1,689,600	
	Intertie Canal - Railroad Crossing to Calloway Canal - Dirtwork	$202,400	$ -	$202,400	
	Intertie canal - Big West Crossing to Railroad Crossing - Lining	$333,600	$ -	$333,600	
	Intertie Canal - Railroad Crossing to Calloway Canal - Lining	$321,000	$ -	$321,000	
	Canal Fencing	$144,000	$ -	$144,000	
	Canal Gates (24' wide)	$ -	$13,200	$13,200	

Table 7 - Project 1 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 1 - Cross Valley Canal to Calloway Canal Intertie

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Bi-directional Acoustic Flowmeter	$40,800	$ -	$40,800	
	SCADA - Telemetry	$32,900	$ -	$32,900	
	Task 10.3 - Performance Testing	*$ -*	*$87,000*	*$87,000*	
	Testing and Inspection	$ -	$87,000	$87,000	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	***$15,000***	***$ -***	***$15,000***	
	Task 11.1 - Pre-Construction Survey	*$10,000*	$ -	*$10,000*	
	Task 11.2 - Construction Monitoring	*$5,000*	$ -	*$5,000*	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management (5% of Construction Cost+Permitting Cost-Bonding Cost)	***$478,500***	***$ -***	***$478,500***	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$10,200**	***$ -***	**$10,200**	
(h)	**Construction/Implementation Contingency (5% of Construction Cost+Permitting Cost-Bonding Cost)**	**$478,500**	***$ -***	**$478,500**	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ 3,386,500**	**$ 7,400,700**	**$ 10,787,200**	**31%**

See Appendix 4.1-1 - Project 1 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

See Appendix 4.1-2 - Project 1 Unit Price Table for detailed Construction Costs

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

Year	Initial Costs	Operations and Maintenance Costs [1]				Discounting Calculations	
	(a)	(b)	(c) & (d)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Other	Total Costs	Discount Factor	Discounted Costs
2009					$ -	1.000	$ -
2010				$ -	$ -	0.943	$ -
2011	$ 4,314,880			$ -	$ 4,314,880	0.890	$ 3,840,243
2012	$ 6,472,320			$ -	$ 6,472,320	0.840	$ 5,436,749
2013		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.792	$ 183,767
2014		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.747	$ 173,326
2015		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.705	$ 163,580
2016		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.665	$ 154,299
2017		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.627	$ 145,482
2018		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.592	$ 137,361
2019		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.558	$ 129,472
2020		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.527	$ 122,279
2021		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.497	$ 115,318
2022		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.469	$ 108,822
2023		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.442	$ 102,557
2024		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.417	$ 96,756
2025		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.394	$ 91,419
2026		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.371	$ 86,083
2027		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.350	$ 81,210
2028		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.331	$ 76,802
2029		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.312	$ 72,393
2030		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.294	$ 68,217

Table 11 -Annual Cost of Project
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

Year	Initial Costs	Operations and Maintenance Costs [1]				Discounting Calculations	
	(a)	(b)	(c) & (d)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Other	Total Costs	Discount Factor	Discounted Costs
2031		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.278	$ 64,504
2032		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.262	$ 60,792
2033		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.247	$ 57,311
2034		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.233	$ 54,063
2035		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.220	$ 51,046
2036		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.207	$ 48,030
2037		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.196	$ 45,478
2038		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.185	$ 42,925
2039		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.174	$ 40,373
2040		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.164	$ 38,053
2041		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.155	$ 35,964
2042		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.146	$ 33,876
2043		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.138	$ 32,020
2044		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.130	$ 30,164
2045		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.123	$ 28,540
2046		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.116	$ 26,915
2047		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.109	$ 25,291
2048		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.103	$ 23,899
2049		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.097	$ 22,507
2050		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.092	$ 21,347
2051		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.087	$ 20,187

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 1: CVC to Calloway Canal Intertie

Year	Initial Costs	Operations and Maintenance Costs [1]				Discounting Calculations	
	(a)	(b)	(c) & (d)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Other	Total Costs	Discount Factor	Discounted Costs
2052		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.082	$ 19,026
2053		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.077	$ 17,866
2054		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.073	$ 16,938
2055		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.069	$ 16,010
2056		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.065	$ 15,082
2057		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.061	$ 14,154
2058		$ 57,960	$ 57,960	$ 116,109	$ 232,029	0.058	$ 13,458
						Total Present Value of Discounted Costs	$ 12,301,954

Notes:

Category (e) not shown, as there are no Replacement costs associated with this project.

Costs shown in (b), (c), and (e) are based on the cost per acre-foot applied to the estimated flow through the project:

Total Flow

Water Conserved:	5,700	AF/Y	
Cawelo Water Better Managed:	17,600	AF/Y	
ID-4 Water Better Managed:	25,000	AF/Y (Average)	See ID-4 WWTP Delivery Schedule Below
	48,300	AF/Y	

Cost Per AF of Flow

Administration:	$ 1.20	/AF	
Operations & Maintenance:	$ 1.20	/AF	

Other - Purchase of Article 21 Water

Article 21 Water available:	5,700	AF	
Cost of Article 21 Water	$ 20.37	/AF	

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 1: CVC to Calloway Canal Intertie

Year	Initial Costs	Operations and Maintenance Costs [1]				Discounting Calculations	
	(a)	(b)	(c) & (d)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	**Admin**	**Operations & Maintenance**	**Other**	**Total Costs**	**Discount Factor**	**Discounted Costs**

Notes Continued:

Delivery Schedule - AF/Y for ID-4 WWTP	
2012-2013	45400
2013-2014	46800
2014-2015	47400
2015-2016	48000
2016-2017	48600
2017-2018	49200
2018-2019	49300
2019-2020	49400
2020-2021	49500
2021-2022	49600
2022-2023	49800
2023-2024	50000
2024-2025	50250
2025-2026	50500
2026-2027	50750
2027-2028	51000
2028-2029	51250
2029-2030	51500
2030-2031	51750
2031-2032	52000
2032-2033	52250
2033-2034	52500
2034-2035	53000
Average	50000
Assume half is Better Managed	25000

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [1]**	**Annual Value [1]**	**Discount Factor**	**Discounted Benefits**
2009					0		$ -	1.000	$ -
2010					0		$ -	0.943	$ -
2011					-		$ -	0.890	$ -
2012					-		$ -	0.840	$ -
2013	Water Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.792	$ 1,354,320
	Cawelo Water Better Managed	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.792	$ 64,817
	ID-4 Water Better Managed	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.792	$ 92,070
2014	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.747	$ 1,277,370
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.747	$ 61,134
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.747	$ 86,839
2015	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.705	$ 1,205,550
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.705	$ 57,697
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.705	$ 81,956
2016	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.665	$ 1,137,150
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.665	$ 54,424
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.665	$ 77,306
2017	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.627	$ 1,072,170
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.627	$ 51,314
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.627	$ 72,889
2018	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.592	$ 1,012,320
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.592	$ 48,449
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.592	$ 68,820

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [1]**	**Annual Value [1]**	**Discount Factor**	**Discounted Benefits**
2019	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.558	$ 954,180
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.558	$ 45,667
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.558	$ 64,868
2020	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.527	$ 901,170
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.527	$ 43,130
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.527	$ 61,264
2021	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.497	$ 849,870
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.497	$ 40,674
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.497	$ 57,776
2022	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.469	$ 801,990
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.469	$ 38,383
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.469	$ 54,521
2023	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.442	$ 755,820
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.442	$ 36,173
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.442	$ 51,383
2024	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.417	$ 713,070
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.417	$ 34,127
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.417	$ 48,476
2025	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.394	$ 673,740
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.394	$ 32,245
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.394	$ 45,803
2026	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.371	$ 634,410
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.371	$ 30,363
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.371	$ 43,129

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [1]**	**Annual Value [1]**	**Discount Factor**	**Discounted Benefits**
2027	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.350	$ 598,500
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.350	$ 28,644
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.350	$ 40,688
2028	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.331	$ 566,010
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.331	$ 27,089
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.331	$ 38,479
2029	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.312	$ 533,520
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.312	$ 25,534
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.312	$ 36,270
2030	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.294	$ 502,740
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.294	$ 24,061
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.294	$ 34,178
2031	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.278	$ 475,380
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.278	$ 22,752
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.278	$ 32,318
2032	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.262	$ 448,020
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.262	$ 21,442
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.262	$ 30,458
2033	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.247	$ 422,370
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.247	$ 20,214
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.247	$ 28,714
2034	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.233	$ 398,430
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.233	$ 19,069
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.233	$ 27,086

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [1]**	**Annual Value [1]**	**Discount Factor**	**Discounted Benefits**
2035	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.220	$ 376,200
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.220	$ 18,005
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.220	$ 25,575
2036	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.207	$ 353,970
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.207	$ 16,941
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.207	$ 24,064
2037	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.196	$ 335,160
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.196	$ 16,041
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.196	$ 22,785
2038	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.185	$ 316,350
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.185	$ 15,140
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.185	$ 21,506
2039	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.174	$ 297,540
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.174	$ 14,240
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.174	$ 20,228
2040	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.164	$ 280,440
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.164	$ 13,422
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.164	$ 19,065
2041	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.155	$ 265,050
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.155	$ 12,685
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.155	$ 18,019
2042	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.146	$ 249,660
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.146	$ 11,949
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.146	$ 16,973

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [1]**	**Annual Value [1]**	**Discount Factor**	**Discounted Benefits**
2043	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.138	$ 235,980
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.138	$ 11,294
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.138	$ 16,043
2044	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.130	$ 222,300
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.130	$ 10,639
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.130	$ 15,113
2045	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.123	$ 210,330
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.123	$ 10,066
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.123	$ 14,299
2046	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.116	$ 198,360
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.116	$ 9,493
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.116	$ 13,485
2047	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.109	$ 186,390
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.109	$ 8,921
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.109	$ 12,671
2048	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.103	$ 176,130
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.103	$ 8,430
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.103	$ 11,974
2049	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.097	$ 165,870
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.097	$ 7,938
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.097	$ 11,276
2050	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.092	$ 157,320
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.092	$ 7,529
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.092	$ 10,695

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [1]**	**Annual Value [1]**	**Discount Factor**	**Discounted Benefits**
2051	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.087	$ 148,770
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.087	$ 7,120
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.087	$ 10,114
2052	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.082	$ 140,220
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.082	$ 6,711
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.082	$ 9,533
2053	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.077	$ 131,670
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.077	$ 6,302
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.077	$ 8,951
2054	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.073	$ 124,830
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.073	$ 5,974
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.073	$ 8,486
2055	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.069	$ 117,990
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.069	$ 5,647
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.069	$ 8,021
2056	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.065	$ 111,150
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.065	$ 5,320
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.065	$ 7,556
2057	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.061	$ 104,310
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.061	$ 4,992
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.061	$ 7,091

Table 12 -Annual Water Supply Benefits

(All costs should be in 2009 Dollars)

Project 1: CVC to Calloway Canal Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value [(1)]**	**Annual Value [(1)]**	**Discount Factor**	**Discounted Benefits**
2058	Wtr Conserved	Acre-feet/yr	-	5,700	5,700	$ 300.00	$ 1,710,000	0.058	$ 99,180
	Cawelo WBM	Acre-feet/yr	-	17,600	17,600	$ 4.65	$ 81,840	0.058	$ 4,747
	ID-4 WBM	Acre-feet/yr	-	25,000	25,000	$ 4.65	$ 116,250	0.058	$ 6,743
							Total Present Value of Discounted Benefits Based on Unit Value		$ 24,864,280

Notes

Amount of Water Conserved 5,700 AF/Y

Cost savings per AF of Water Conserved $ 300.00

The cost savings of "Water Conserved" is based on the cost of water if a District in the Poso Creek IRWM Plan Region were to purchase water on the spot market.

Sum of Benefits from Water Conserved: $ 22,293,270.00

Amount of Cawelo Water Better Managed (WBM) 17,600 AF/Y

Cost savings per AF of Water Better Managed $ 4.65

The cost savings of "water better managed" is based on the following:

$ 2.10 Conveyance Fee for water conveyed through the CVC Extension per ac-ft

$ 2.55 Operations and Maintenance for Pump Station A

Sum of Benefits from Cawelo Water Better Managed: $ 1,066,948.08

Amount of ID-4 Water Better Managed (WBM) 25,000 AF/Y

Cost savings per AF of Water Better Managed $ 4.65

The cost savings of "water better managed" is based on the following:

$ 2.10 Conveyance Fee for water conveyed through the CVC Extension per ac-ft

$ 2.55 Operations and Maintenance for Pump Station A

Sum of Benefits from ID-4 Water Better Managed: $ 1,515,551.25

Table 15 - Total Water Supply Benefits

(All costs should be in 2009 Dollars)

Project 1: CVC to Calloway Canal Intertie

Total Discounted Water Supply Benefits	Total Discounted Avoided Project Costs	Other Discounted Water Supply Benefits	Total Present Value of Discounted Benefits
(a)	(b)	(c)	(d)
$ 24,864,280.11	$ -	$ -	$ 24,864,280.11

Comments:

7.2 Project 2 – Madera Avenue Intertie

Semitropic Water Storage District (Semitropic) and Shafter-Wasco Irrigation District (SWID) are proposing to construct a bi-directional water conveyance connection or intertie, identified as the *Madera Avenue Intertie* (Project), and these districts are requesting a grant under Proposition 84 to assist with funding. The intertie is intended to serve several purposes and will provide several types of benefits which include the following:

Water Supply

- Avoided Water Supply Purchases (Bring more surplus surface water into the Region); and
- Avoided Water Shortage Costs.

Water Quality and Other (discussed in Attachment 8)

- Water Quality
- Power Cost Savings;
- Emergency Back-up; redundant means for conveying water into Semitropic and SWID;
- Reduced emissions (due to less pumping);
- Increased labor; and
- Expanded Water Banking Interconnections; provide route for CVP Delta water and SWP water to be delivered to CVP Contractors to complete banking and exchange agreements.

Attachment 7 ***Economic Analysis -Water Supply Costs and Benefits*** includes analysis of the first four benefits listed. The remaining benefits are analyzed under Attachment 8 ***Water Quality and Other Expected Benefits.***

The proposed Project was identified in a recently completed Integrated Regional Water Management Plan (July 2007) for the Poso Creek Region, which includes the Applicant and several other water districts that share a common groundwater resource. The intertie would connect SWID with Semitropic and is designed to operate in an east to west direction by gravity flow and a west to east direction by pumping, at rates of 16 to 24 cubic feet per second. The project would cost $6.1 million in construction costs and $661,500/yr for operation and maintenance costs in a recovery year, $220,500 on an average annual basis. The Present Worth of the Project is estimated in Table 7 – Project 2 at $7,603,199.

The Water Supply Benefits associated with the *Madera Avenue Intertie* can be either quantified or described qualitatively and are summarized in Exhibit 7.2-1. A summary of costs and benefits is provided in Exhibit 7.2-2. For purposes of the Grant application the Water Supply Benefits used in the economic analysis tables are Avoided Water Supply Purchases. The other benefits may occur in some mix of operations and use of the new

facilities, but differentiating the uses at this time would be speculation and would not add or detract from the benefits anticipated in the analysis.

EXHIBIT 7.2-1
Project 2 Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Avoided Water Supply Purchases	Monetized	Local
Avoided Water Shortage Costs	Monetized	Local
Water Quality Benefits		
Avoided damage to crops	Monetized	Local
Other Benefits		
Power Cost Savings	Monetized	Local
Emergency Back-Up	Qualitative	Local
Reduced Emissions	Quantitative	Local and State
Increased Labor	Quantitative	Local and State
Expanded Water Banking Interconnections	Qualitative	Local, State and Federal

EXHIBIT 7.2-2
Project 2 Benefit and Cost Summary

Type of Benefit	Present Value	Qualitative Indicator
Capital and O&M Costs	$7,603,199	
Water Supply Benefits (Attachment 7)		
Avoided Water Supply Purchases	$9,183,750	
Avoided Water Shortage Costs	Monetized	++
Water Quality Benefits (Attachment 8)		
Avoided damage to crops	Monetized	++
Other Benefits		
Power Cost Savings	$2,130,303	
Emergency Back-Up	Monetized	++
Reduced Emissions	Quantitative	++
Increased Labor	Quantitative	+
Expanded Water Banking Interconnections	Qualitative	+
Total Monetary Benefits	**$11,314,053**	
Notes: *+ indicates net benefits are likely to increase* *++ indicates net benefits are likely to increase significantly* *O&M = operations and maintenance*		

7.2.1 Costs

As shown in more detail on Table 7 – Project 2, the Project costs are estimated to be $6,097,720. Project implementation will occur over 24 months, staggered over three calendar years, with 5% during the first year and 15% during the second year and 80% the third year. Annual administration, operations and maintenance costs will increase with inflation, but are otherwise not expected to increase with implementation of the project. The Project will actually result in lower power costs than the without project operations, as summarized under other benefits. The total present value of the costs over the useful life of the project is $7,603,199 as shown in Table 11 – Project 2.

7.2.2 Water Supply Benefits

7.2.2.1 Avoided Water Supply Purchases/Costs

Presently, Friant Kern CVP water can be delivered into SWID through its turnouts from the Friant Kern Canal. While Semitropic is not a CVP long term contractor, CVP water can be delivered into Semitropic since it is in the CVP Place of use. In addition Semitropic has acquired Friant 215 water and Friant Flood water in the past. The capacity of Semitropic to store water for CVP Delta and Friant-Kern contractors is about 350,000 acre-feet per year;

however, much of that is obligated for existing banking partners. An additional 105,000 acre-feet per year capacity has been identified above the banking partner obligations. The CVP Contractors have a variety of ways to convey water into storage into Semitropic either directly or by exchange.

Based on operations analyses looking at water supply timing, irrigation demand and canal capacity availability, average annual water supplies conserved with the Project can range from 800 acre-feet to 7,500 acre-feet depending on study assumptions and water availability. The initial design of the project has included a 36-inch diameter pipeline capable of conveying 36 cfs to a small portion of SWID's service area. Due to the small service area, it was determined that extra capacity in the system would only be available for about 2 months, resulting in a yield of about 4,300 acre-feet. Another option under evaluation is to build a smaller diameter, 24-inch to 27-inch, pipeline over a longer distance to reach more of the SWID service area for the same cost as the 36-inch pipeline. The smaller diameter pipeline will provide about 16 cubic feet per second for 8 months which will allow about 7,500 acre-feet to be delivered for recharge or recovery, depending on the water supply conditions.

Operating the *Madera Avenue Intertie* during wet periods to store water for CVP contractors can add about 7,500 acre-feet per year of storage to Semitropic's system. Since wet periods occur about once every three years on average, the average annual recharge potential for the Project is 2,500 acre-feet per year. For purposes of the economic analysis 2,500 acre-feet on an average annual basis has been chosen as representative. Once in storage, the water can be held in place to help in decreasing pump lifts, could be stored temporarily (seasonally for irrigation deliveries or held for dry year recovery) or could be sold/marketed to outside interests. Delivery of this water to storage in lieu of pumping groundwater will result in less water pumped from groundwater and less water flowing out to the ocean and not be available for beneficial use within the Region.

Operating the *Madera Avenue Intertie* during dry periods to recover stored water for CVP contractors can add about 7,500 acre-feet per year of water supply to those district storing water in Semitropic's system. Since dry periods occur about once every three years on average, the average annual recovery potential for the Project is 2,500 acre-feet/yr. For purposes of the economic analysis 2,500 acre-feet on an average annual basis has been chosen as representative. If the Project was not built, these districts would have to acquire water on the open market or statewide dry year programs. The cost to acquire 2,500 acre-feet of annual supply can be expressed in terms of what other central valley water districts have paid for supplies. Recent sales have varied from $225/acre-feet to $655/acre-feet depending on SWP allocations, as provided in Appendix 7.1-2 Water sales/purchases. The most recent water sales have been from Dudley Ridge Water District to Tejon Ranch for $11.7 million for 1,998 acre-feet of SWP Table A. This equates to a unit annual present worth of about $293/a plus annual SWP charges of about $100/acre-foot assuming 100% SWP allocation, for a total of $393/acre-feet. At 60% reliability this cost becomes $655/acre-feet. Another recent sale includes the purchasing district, West Kern Water District, paying $100/acre-feet

plus the annual SWP costs. During 2010 with an SWP allocation of 50%, this amounted to just over $300/acre-feet. If the allocation would have remained at 35% of Table A, the cost would have been $385/acre-feet. A third recent sale was Kern Delta Water District to West Kern Water District at $100/acre-feet over SWP fixed costs, which has ranged from $225/acre-feet to $250/acre-feet. This analysis uses the $300/acre-feet cost based on the range of water sales and the ability of local growers to pay for water. The average annual cost of the alternate supply is $750,000. The present value of the expected avoided water supply purchase costs over the life of the project is $9,183,750 as shown in Table 12 – Project 2.

7.2.2.2 Avoided Water Shortage Costs

If water cannot be purchased to make up for reduced surface supplies during droughts or other surface water system restrictions, and the water table continues to decline to a point it is not cost effective to pump groundwater or water quality degrades to the point it impacts the crops, growers will have to fallow crops or not irrigate permanent crops potentially resulting in damages such as lost yield, or dead crops. During 2009 an analysis was done by Kern County Water Agency for Kern County on the value of crop losses due to the drought and reduced pumping from the Delta. The analysis drew from a State-wide analysis by Howitt, MacEwan, and Medellin-Azuara, published in Agricultural and Resources Economics Update, V. 12 No. 3 Jan/Feb 2009, "Economic Impacts of Reductions in Delta Exports on Central Valley Agriculture", by Giannini Foundation of Agricultural Economics, University of California. Based on the amount of damages occurring due to a predicted 35% water supply on the SWP, about $300 million in damages was expected to occur on 88,000 acres not irrigated or under-irrigated, which equates to about $3,400/acre. (Note the final allocation did go up to 40%, but late in the season acre-feet cropping plans were already in place).

Based on crop water use requirements within the CVP districts that would store water pursuant to this Project, for every 2.5 acre-feet lost, about one acre is at risk. Considering the expected new supply available as a result of the project, 7,500 acre-feet per year, 7500/2.5 = 3,000 acres would be damaged or under-irrigated if alternative supplies are unavailable. This results in an economic impact of $3,400/acre times 3,000 acres = $10.2 million each dry year, which is equivalent to $3.4 million on an average annual basis. Note that the $3,400/acre value is based on a mix of permanent and row crops, for the most part the districts participating in the storage program are supplying water to predominately permanent crops. If those crops are destroyed as a result of the lack of supply the damage value is closer to $23,000/acre, as defined in Table 15 of Northwest Economics, "Economic Impacts of the 1992 Drought Year", Kern County Water Agency, 1994, Appendix 9.1-1 to Attachment 9, resulting in a permanent loss of direct on farm agricultural value of 3,000 acres times $23,000/acre = $69,000,000. The present value of the avoided water shortage costs over the life of the project is not used in the benefit analysis as this could be viewed as either /or on water supply benefits analysis and it is anticipated growers will endeavor to find other

sources of supply to stay in business. This information is provided to help explain the seriousness of the problems facing agriculture in the Poso Creek Region and will be considered as a qualitative benefit.

The Howitt et al report was updated in September 2009, "Measuring the Employment Impact of Water Reductions", Richard Howitt, Josue Medellin-Azuara, Duncan MacEwan, Department of Agriculture and Resource Economics and Center for Watershed Sciences, University of California, Davis, September 28, 2009. The report equates jobs lost to agricultural production value lost. The revised report concludes that as many as 30 jobs are lost per million dollars in lost farm production. Therefore, 30 times $10.2 million = 306 jobs will not be lost each dry year if the project were implemented.

7.2.3 Distribution of Benefits and Identification of Beneficiaries

Beneficiaries include, but are not limited to, Delano-Earlimart Irrigation District, Kern-Tulare Water District, Shafer-Wasco Irrigation District and Semitropic Water Storage District, which are all neighboring districts sharing a common groundwater basin. In addition several Disadvantaged Communities share the common groundwater basin and will receive benefits from the water stored using these facilities.

7.2.4 Benefits Timeline

The estimated life of the project is 50 years. Benefits will begin in year 2013, after further analysis, final design and 1 year of construction, beginning in 2011.

7.2.5 Uncertainty of Benefits

The benefits defined are based on the best available information regarding availability of CVP water and historic operations of the water districts involved. Changes impacting operations of the CVP and the ability to pump from the Delta could change the availability of supplies and therefore the water supply benefits estimated. This could be either more water or less. If Delta improvements move forward within ten years as expected, the benefits from the new facilities will be enhanced.

7.2.6 Potential Adverse Effects

The Project will cause temporary disturbances of land surfaces during construction that will be mitigated, and there are no long-term adverse impacts expected as a result of the Project. Any unforeseen temporary impacts will be mitigated. Once operational the Project actually increases water supplies which helps offset adverse impacts from water shortages and dwindling supply availability to the region.

7.2.7 Summary of Findings

Project benefits will occur from avoided water supply purchase costs and avoided water shortage costs. All of these benefits may occur in some combination, however to avoid double counting benefits, monetary benefits were computed for avoided water supply purchases costs only. The benefits total is estimated to be $9,183,750 (Table 15 –Project 2). Avoided water shortage costs, are only discussed qualitatively; monetized benefits claimed for these benefits are not included in the benefits analysis. However, the value of the project can be looked at in many ways and any combination of the above may be possible. The need is demonstrated by the consequences defined by not implementing the Project. Note Tables 13 and 14 are not included as they are not needed for this analysis.

7.2.8 Appendices

There are no appendices in this section – all referenced appendices appear in Project 1 under Attachment 7 Project1 and Attachment 9 Project 1.

7.2.9 Tables

Table 7 – Project 2	Costs
Table 11 – Project 2	Annual Cost of Project
Table 12 – Project 2	Water Supply Benefits
Table 13 – Not Included	
Table 14 – Not Included	
Table 15 – Project 2	Total Water Supply Benefits

Table 7 - Project 2 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 2 - Madera Avenue Intertie

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration (1% of Construction Cost + Land Purchase/Easement Cost - Bonding Cost)	***$42,500***	***$ -***	***$42,500***	
	Task 1.1 - Intertie Pipeline and Booster Pumping Plant	*$30,100*	*$ -*	*$30,100*	
	Task 1.2 - Distribution System in SWID	*$12,400*	*$ -*	*$12,400*	
	Task 2 - Labor Compliance Program	***$15,000***	***$ -***	***$15,000***	
	Task 3 - Reporting	***$35,300***	***$ -***	***$35,300***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$4,800*	*$ -*	*$4,800*	
	Task 3.2 - Quarterly Reporting	*$16,400*	*$ -*	*$16,400*	
	Task 3.3 - Annual Reporting	*$6,100*	*$ -*	*$6,100*	
	Task 3.4 - Final Report	*$8,000*	*$ -*	*$8,000*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$132,000***	***$ -***	***$132,000***	
	Task 4.1 - Obtain Trunk Line Rights-of-Way	*$54,000*	*$ -*	*$54,000*	
	Task 4.1 - Obtain Distribution System Rights-of-Way	*$78,000*	*$ -*	*$78,000*	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$30,100***	***$0***	***$30,100***	
	Task 6 - Design (5% of Construction Cost + Land Purchase/Easement Cost - Bonding Cost)	***$212,600***	***$ -***	***$212,600***	
	Task 6.1 - Intertie Pipeline and Booster Pumping Plant	*$150,700*	*$ -*	*$150,700*	
	Task 6.2 - Distribution System in SWID	*$61,900*	*$ -*	*$61,900*	

Table 7 - Project 2 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 2 - Madera Avenue Intertie

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Task 7 - Environmental Documentation	***$50,200***	***$ -***	***$50,200***	
	Task 8 - Permitting	***$30,000***	***$ -***	***$30,000***	
	Task 8.1 - Permits and Fees	*$14,000*	*$ -*	*$14,000*	
	Task 8.2 - Verify Permitting Compliance	*$16,000*	*$ -*	*$16,000*	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	***$ -***	***$ -***	***$ -***	
	Task 10 - Construction	***$1,404,740***	***$3,400,080***	***$4,162,200***	
	Task 10.1 - Mobilization and Site Prep	*$42,500*	*$ -*	*$42,500*	
	Mobilization, Demobilization, Site Preparation	$ -	$ -	$ -	
	Bonding (1% of Construction Costs + Land Purchase/Easement)	$ 42,500.00	$ -	$42,500	
	Task 10.2 - Project Construction	*$1,362,240*	*$3,400,080*	*$4,119,700*	
	Task 10.2.1 - Intertie Pipeline	$ -	$1,526,400	$1,603,400	
	Obtain and Install 36" RCP Trunk Line	$ -	$1,526,400	$1,526,400	
	Tie-in to Existing SWID 33" RCP	$25,000	$ -	$25,000	
	Obtain and Install 1-36" Isolation Butterfly Valve	$20,000	$ -	$20,000	
	Obtain and Install 2-30" Isolation Butterfly Valves	$32,000	$ -	$32,000	
	Task 10.2.2 - Booster Pumping Plant	$59,750	$1,296,110	$1,355,860	
	Pumping Plant Sitework	$20,000	$ -	$20,000	
	Obtain and Install 4-10cfs/100Hp Pumps	$ -	$240,000	$240,000	
	Obtain and Install 2-5cfs/50Hp Pumps	$ -	$100,000	$100,000	
	Obtain and Install 36"x1/4" Steel Manifold Piping	$ -	$207,360	$207,360	
	Obtain and Install 4-36" Butterfly Valves for 36" Manifold Headers	$30,000	$30,000	$60,000	

Table 7 - Project 2 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 2 - Madera Avenue Intertie

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Branch Manifold Pipings with All Valves, Couplings, including 12" Ball Valve, and Connecting Piping	$ -	$300,000	$300,000	
	Obtain and Install 1-36" Bi-directional Sonic Flowmeter	$9,000	$ -	$9,000	
	Construct Meter Vault	$ -	$50,000	$50,000	
	Obtain and Erect Chain Link Fence	$ -	$18,000	$18,000	
	Obtain and Install 1-16' Wide Double Metal Drive Gate	$750	$750	$1,500	
	Perform All Associated Electrical Work	$ -	$350,000	$350,000	
	Task 10.2.3 - Distribution System in SWID	$582,870	$577,570	$1,160,440	
	Obtain and Install 27" PVC Pipe	$158,400	$158,400	$316,800	
	Obtain and Install 24" PVC Pipe	$71,280	$71,280	$142,560	
	Obtain and Install 18" PVC Pipe	$55,440	$55,440	$110,880	
	Obtain and Install 15" PVC Pipe	$207,900	$207,900	$415,800	
	Obtain and Install Pipeline Appurtenances	$49,300	$49,300	$98,600	
	Construct 10-Farm Turnouts	$30,000	$30,000	$60,000	
	Obtain and Install 1-24" Butterfly Valve	$5,300	$ -	$5,300	
	Obtain and Install 3-14" Butterfly Valves	$5,250	$5,250	$10,500	
	Task 10.3 - Performance Testing	*$ -*	*$ -*	*$0*	
	Testing and Inspection	$ -	$ -	$0	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	***$15,000***	***$ -***	***$15,000***	
	Task 11.1 - Pre-Construction Survey	*$10,000*	*$ -*	*$10,000*	
	Task 11.2 - Construction Monitoring	*$5,000*	*$ -*	*$5,000*	

Table 7 - Project 2 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 2 - Madera Avenue Intertie

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management (7% of Construction Cost + Land Purchase/Easement Cost - Bonding Cost)	***$296,500***	***$ -***	***$296,500***	
	Task 12.1 - Intertie Pipeline and Booster Pumping Plant	*$210,900*	*$ -*	*$210,900*	
	Task 12.2 - Distribution System in SWID	*$85,600*	*$ -*	*$85,600*	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$10,200**	**$ -**	**$10,200**	
(h)	**Construction/Implementation Contingency (10% of Construction Cost + Land Purchase/Easement Cost - Bonding Cost)**	**$423,500**	**$ -**	**$423,500**	
	Intertie Pipeline and Booster Pumping Plant	*$301,300*	*$ -*	*$301,300*	
	Distribution System in SWID	*$122,200*	*$ -*	*$122,200*	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ 2,697,640**	**$ 3,400,080**	**$ 6,097,720**	**44%**

See Appendix 4.2-1 - Project 2 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

See Appendix 4.2-2 - Project 2 Unit Price Table for detailed Construction Costs

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project
(All costs should be in 2009 Dollars)
Project 2: Madera Avenue Intertie

Year	Initial Costs	Operations and Maintenance Costs				Discounting Calculations	
	(a)	(b)	(c)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Other	Total Costs	Discount Factor	Discounted Costs
2009					$ -	1.000	$ -
2010					$ -	0.943	$ -
2011	$ 304,886				$ 304,886.00	0.890	$ 271,349
2012	$ 914,658				$ 914,658.00	0.840	$ 768,313
2013	$ 4,878,176				$ 4,878,176	0.792	$ 3,863,515
2014		$3,000	$ 7,500	$ 210,000	$ 220,500	0.747	$ 164,714
2015		$3,000	$ 7,500	$ 210,000	$ 220,500	0.705	$ 155,453
2016		$3,000	$ 7,500	$ 210,000	$ 220,500	0.665	$ 146,633
2017		$3,000	$ 7,500	$ 210,000	$ 220,500	0.627	$ 138,254
2018		$3,000	$ 7,500	$ 210,000	$ 220,500	0.592	$ 130,536
2019		$3,000	$ 7,500	$ 210,000	$ 220,500	0.558	$ 123,039
2020		$3,000	$ 7,500	$ 210,000	$ 220,500	0.527	$ 116,204
2021		$3,000	$ 7,500	$ 210,000	$ 220,500	0.497	$ 109,589
2022		$3,000	$ 7,500	$ 210,000	$ 220,500	0.469	$ 103,415
2023		$3,000	$ 7,500	$ 210,000	$ 220,500	0.442	$ 97,461
2024		$3,000	$ 7,500	$ 210,000	$ 220,500	0.417	$ 91,949
2025		$3,000	$ 7,500	$ 210,000	$ 220,500	0.394	$ 86,877
2026		$3,000	$ 7,500	$ 210,000	$ 220,500	0.371	$ 81,806
2027		$3,000	$ 7,500	$ 210,000	$ 220,500	0.350	$ 77,175
2028		$3,000	$ 7,500	$ 210,000	$ 220,500	0.331	$ 72,986

Table 11 -Annual Cost of Project
(All costs should be in 2009 Dollars)
Project 2: Madera Avenue Intertie

Year	Initial Costs	Operations and Maintenance Costs				Discounting Calculations	
	(a)	(b)	(c)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Other	Total Costs	Discount Factor	Discounted Costs
2029		$3,000	$ 7,500	$ 210,000	$ 220,500	0.312	$ 68,796
2030		$3,000	$ 7,500	$ 210,000	$ 220,500	0.294	$ 64,827
2031		$3,000	$ 7,500	$ 210,000	$ 220,500	0.278	$ 61,299
2032		$3,000	$ 7,500	$ 210,000	$ 220,500	0.262	$ 57,771
2033		$3,000	$ 7,500	$ 210,000	$ 220,500	0.247	$ 54,464
2034		$3,000	$ 7,500	$ 210,000	$ 220,500	0.233	$ 51,377
2035		$3,000	$ 7,500	$ 210,000	$ 220,500	0.220	$ 48,510
2036		$3,000	$ 7,500	$ 210,000	$ 220,500	0.207	$ 45,644
2037		$3,000	$ 7,500	$ 210,000	$ 220,500	0.196	$ 43,218
2038		$3,000	$ 7,500	$ 210,000	$ 220,500	0.185	$ 40,793
2039		$3,000	$ 7,500	$ 210,000	$ 220,500	0.174	$ 38,367
2040		$3,000	$ 7,500	$ 210,000	$ 220,500	0.164	$ 36,162
2041		$3,000	$ 7,500	$ 210,000	$ 220,500	0.155	$ 34,178
2042		$3,000	$ 7,500	$ 210,000	$ 220,500	0.146	$ 32,193
2043		$3,000	$ 7,500	$ 210,000	$ 220,500	0.138	$ 30,429
2044		$3,000	$ 7,500	$ 210,000	$ 220,500	0.130	$ 28,665
2045		$3,000	$ 7,500	$ 210,000	$ 220,500	0.123	$ 27,122
2046		$3,000	$ 7,500	$ 210,000	$ 220,500	0.116	$ 25,578
2047		$3,000	$ 7,500	$ 210,000	$ 220,500	0.109	$ 24,035
2048		$3,000	$ 7,500	$ 210,000	$ 220,500	0.103	$ 22,712
2049		$3,000	$ 7,500	$ 210,000	$ 220,500	0.097	$ 21,389
2050		$3,000	$ 7,500	$ 210,000	$ 220,500	0.092	$ 20,286

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 2: Madera Avenue Intertie

Year	Initial Costs	Operations and Maintenance Costs				Discounting Calculations	
	(a)	(b)	(c)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	**Admin**	**Operations & Maintenance**	**Other**	**Total Costs**	**Discount Factor**	**Discounted Costs**
2051		$3,000	$ 7,500	$ 210,000	$ 220,500	0.087	$ 19,184
2052		$3,000	$ 7,500	$ 210,000	$ 220,500	0.082	$ 18,081
2053		$3,000	$ 7,500	$ 210,000	$ 220,500	0.077	$ 16,979
2054		$3,000	$ 7,500	$ 210,000	$ 220,500	0.073	$ 16,097
2055		$3,000	$ 7,500	$ 210,000	$ 220,500	0.069	$ 15,215
2056		$3,000	$ 7,500	$ 210,000	$ 220,500	0.065	$ 14,333
2057		$3,000	$ 7,500	$ 210,000	$ 220,500	0.061	$ 13,451
2058		$3,000	$ 7,500	$ 210,000	$ 220,500	0.058	$ 12,789
						Total Present Value of Discounted Costs	$ 7,603,199

Notes:

For Initial Cost; assumed 5% of Capital Cost spent in 2011, 15% in 2012, and 80% in 2013

Category (e) not shown, as there are no Replacement costs associated with this project.

Costs shown in (b), (c), and (d) are based on the cost per acre-foot applied to the estimated flow through the project:

Total Flow

Returned Water 2,500 AF/Y

Cost Per AF of Flow

Administration:	$ 1.20	/AF
Operations & Maintenance:	$ 3.00	/AF
Replacement (Pumps):	$ 340,000	In year 25 of Project
Other (Power):	$ 84.00	/AF

Table 12 -Annual Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 2: Madera Avenue Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value**	**Annual Value**	**Discount Factor**	**Discounted Benefits**
2009								1.000	
2010								0.943	
2011								0.890	
2012								0.840	
2013								0.792	
2014	Avoided Water Purchase	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.747	$ 560,250
2015	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.705	$ 528,750
2016	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.665	$ 498,750
2017	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.627	$ 470,250
2018	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.592	$ 444,000
2019	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.558	$ 418,500
2020	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.527	$ 395,250
2021	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.497	$ 372,750
2022	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.469	$ 351,750
2023	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.442	$ 331,500
2024	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.417	$ 312,750
2025	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.394	$ 295,500
2026	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.371	$ 278,250

Table 12 -Annual Water Supply Benefits

(All costs should be in 2009 Dollars)

Project 2: Madera Avenue Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value**	**Annual Value**	**Discount Factor**	**Discounted Benefits**
2027	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.350	$ 262,500
2028	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.331	$ 248,250
2029	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.312	$ 234,000
2030	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.294	$ 220,500
2031	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.278	$ 208,500
2032	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.262	$ 196,500
2033	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.247	$ 185,250
2034	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.233	$ 174,750
2035	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.220	$ 165,000
2036	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.207	$ 155,250
2037	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.196	$ 147,000
2038	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.185	$ 138,750
2039	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.174	$ 130,500
2040	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.164	$ 123,000
2041	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.155	$ 116,250
2042	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.146	$ 109,500
2043	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.138	$ 103,500
2044	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.130	$ 97,500

Table 12 -Annual Water Supply Benefits

(All costs should be in 2009 Dollars)

Project 2: Madera Avenue Intertie

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project**	**Unit Value**	**Annual Value**	**Discount Factor**	**Discounted Benefits**
2045	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.123	$ 92,250
2046	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.116	$ 87,000
2047	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.109	$ 81,750
2048	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.103	$ 77,250
2049	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.097	$ 72,750
2050	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.092	$ 69,000
2051	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.087	$ 65,250
2052	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.082	$ 61,500
2053	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.077	$ 57,750
2054	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.073	$ 54,750
2055	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.069	$ 51,750
2056	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.065	$ 48,750
2057	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.061	$ 45,750
2058	AWP	AF/Y	$ -	2,500	2,500	$ 300	$750,000	0.058	$ 43,500
								Total Present Value of Discounted Benefits Based on	$ 9,183,750.00

Notes:

Avoided Water Purchase (AWP):

Returned Water Without Project	-	AF/Y
Returned Water With Project	2,500	AF/Y
Cost of Water on Spot Market	$ 300	/AF

Table 15 - Total Water Supply Benefits
(All costs should be in 2009 Dollars)
Project 2: Madera Avenue Intertie

Total Discounted Water Supply Benefits	Total Discounted Avoided Project Costs	Other Discounted Water Supply Benefits	Total Present Value of Discounted Benefits
(a)	(b)	(c)	(d)
$ 9,183,750.00	$ -	$ -	$ 9,183,750.00

Comments:

7.3 Project 3 – Habitat Improvements on Pond-Poso and Turnipseed Spreading Basins

Project 3 would add wildlife habitat along the margins of Pond-Poso and Turnipseed Spreading Basins in two locations within the Poso Creek IRWM Region. Specifically the following habitats would be created:

- 443 Acres of wetland habitat along the margin or within the shallow-pond areas within the Pond-Poso Spreading Basins
- 31.3 Acres of emergent and riparian habitat along the margin of the created wetland habitat in the Pond-Poso Spreading Basins.
- 70 Acres of wetland habitat along the margin or within the shallow-pond areas within DEID's Turnipseed Spreading Basin
- 2.7 Acres of emergent and riparian habitat along the margin of the created wetland habitat in DEID's Turnipseed Spreading Basin

The benefits of Project 3 include enhanced environmental resources, multiple water uses for existing supply, enhanced aesthetic values, and improved quality of infiltrated water. The benefits are summarized in Exhibits 7.1-1 and 7.1-2

EXHIBIT 7.3-1
Project 3 Benefit Overview Habitat Improvements on Pond-Poso and Turnipseed Spreading Basins

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Multiple Water Uses For Existing Supply	Qualitative	Local
Water Quality Benefits		
Improved Quality Of Infiltrated Water	Qualitative	Local
Other Benefits		
Enhanced Environmental Resources	Qualitative	Local Regional
Enhanced Aesthetic Values	Qualitative	Local

EXHIBIT 7.3-2
Project 3 Benefit Summary Habitat Improvements on Pond-Poso and Turnipseed Spreading Basins

Type of Benefits/Costs	Present Value
Capital and O&M Costs	$101,457
Quantitative Benefits	
Enhanced Environmental Resources	Establishment of 513 acres of wetland and 34 acres of upland habitat. Value not monetized.
Quantitative Benefits	**Qualitative Indicator**
Multiple Water Uses For Existing Supply	Expanded wetland and riparian habitat utilizing water diverted for ground-water recharge.+
Improved Quality Of Infiltrated Water	Removal of nitrates and other contaminants by biological activity. +
Enhanced Aesthetic Values	Establishment of habitat with trees and shrubs to add variation to near-and mid distance views. ++

Notes:
+ indicates net benefits are likely to increase
++ indicates net benefits are likely to increase significantly
O&M = operations and maintenance

7.3.1 Costs

The present value cost of adding wildlife habitat along the margins of Pond-Poso and Turnipseed Spreading Basins, Project 3 will be $101,457. Any O&M or ongoing administrative costs are expected to be minimal.

7.3.2 Water Supply Benefits

7.3.2.1 Multiple Uses of Water Used to Recharge Ground-water

The benefits of adding wildlife habitat along the margins of Pond-Poso and Turnipseed Spreading Basins include enhanced environmental resources, multiple water uses for existing supply, enhanced aesthetic values, and improved quality of infiltrated water.

The water supply benefits would be multiple use of water for both environmental and ground-water recharge. This makes more efficient use of available supplies. The savings in supplies would be the difference between the total water used within the multiple use area as compared to recharge and habitat development activities being performed on separate sites. Besides water supply efficiencies, there would be a savings in total acreage needed to achieve the same benefits on separate sites.

Due to uncertainties of the water savings due to multiple uses, and lack of basis for establishing the value of the habitat established, this benefit is not monetized.

7.3.3 Distribution of Benefits and Identification of Beneficiaries

Adding wildlife habitat along the margins of Pond-Poso and Turnipseed Spreading Basins will have local benefits of improving water quality, and aesthetics. Providing additional wetland and adjacent uplands habitat will have regional and state level benefits to endangered and sensitive species.

7.3.4 Benefits Timeline

Initial establishment of wildlife habitat along the margins of Pond-Poso and Turnipseed Spreading Basins will require 2 years. The estimated life of the project is 40 years. The Project will begin in 2011 with site grading and wetland plantings and benefits of environmental improvements will begin late in year 2011. As the plantings become established and shrubs and trees in the uplands areas become mature, the full benefits of the diverse habitat will be realized. These full benefits may be realized within 5 to 10 years.

7.3.5 Uncertainties

There is uncertainty regarding the benefits of improved water quality. The levels and timing of improvement are uncertain. The level of current health costs due to poor water quality and potential health improvements are not known.

7.3.6 Potential Adverse Effects

The grading will cause minor temporary disturbances in previously disturbed areas. No long term impacts expected as a result of the Project. Any unforeseen temporary impacts will be mitigated.

7.3.7 Summary of Findings

Project benefits will occur from the improved water quality and avoided health costs. Because these benefits are only discussed qualitatively, monetized benefits claimed for this Project cannot be estimated, but may be significant in the long run due to improved health.

7.3.8 Appendices

No Appendices.

7.3.9 Tables

Table 7 – Project 3	Costs
Table 11 – Project 3	Annual Cost of Project

Table 7 - Project 3 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 3 - Habitat Improvement on Pond-Poso and Turnipseed Spreading Basins

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration (1% of Project Cost)	***$1,170***	***$ -***	***$1,170***	
	Task 2 - Labor Compliance Program	***$1,400***	***$ -***	***$1,400***	
	Task 3 - Reporting	***$10,400***	***$ -***	***$10,400***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$1,300*	*$ -*	*$1,300*	
	Task 3.2 - Quarterly Reporting	*$2,600*	*$ -*	*$2,600*	
	Task 3.3 - Annual Reporting	*$2,600*	*$ -*	*$2,600*	
	Task 3.4 - Final Report	*$3,900*	*$ -*	*$3,900*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$ -***	***$ -***	***$ -***	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$ -***	***$ -***	***$ -***	
	Task 6 - Design (5% of Project Cost)	***$5,850***	***$ -***	***$ -***	
	Task 7 - Environmental Documentation	***$ -***	***$ -***	***$ -***	
	Task 8 - Permitting	***$ -***	***$ -***	***$ -***	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	***$ -***	***$ -***	***$ -***	
	Task 10 - Construction	***$ -***	***$67,610***	***$67,610***	
	Task 10.1 - Mobilization and Site Prep (5% of Project Cost)	*$ -*	*$10,000*	*$10,000*	
	Task 10.2 - Project Construction	*$ -*	*$57,610*	*$57,610*	
	Task 10.2.1 - Pond-Poso Spreading Basin Habitat Improvement	$ -	$52,830	$52,830	
	Ground Cover in Bench Area	$ -	$13,230	$13,230	
	Ground Cover in Shallow Flooded Area	$ -	$15,070	$15,070	
	Shrub Layer in Bench Area	$ -	$14,960	$14,960	
	Tree Layer in Bench Area	$ -	$9,570	$9,570	

Table 7 - Project 3 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 3 - Habitat Improvement on Pond-Poso and Turnipseed Spreading Basins

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Task 10.2.2 - Turnipseed Spreading Basin Habitat Improvement	$ -	$4,780	$4,780	
	Ground Cover in Bench Area	$ -	$ 1,260	$1,260	
	Ground Cover in Shallow Flooded Area	$ -	$ 1,330	$1,330	
	Shrub Layer in Bench Area	$ -	$ 1,340	$1,340	
	Tree Layer in Bench Area	$ -	$ 850	$850	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	***$ -***	***$ -***	***$ -***	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management (5% of Construction Cost)	***$3,400***	***$ -***	***$ -***	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$7,300**	**$ -**	**$7,300**	
(h)	**Construction/Implementation Contingency (25% of Construction Cost)**	***$0***	***$16,900***	***$ -***	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ 29,520**	**$ 87,910**	**$ 117,430**	**25%**

Notes:

See Appendix 4.3-1 - Project 3 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

See Appendix 4.3-2 - Project 3 Unit Price Table for detailed Construction Costs

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Contruction/Implementation Contingency is 25% to account for non-viability of habitat establishment (cutting, planting, seeding).

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 3: Habitat Improvement on Pond-Poso and Turnipseed Spreading Basins

Year	Initial Costs	Operations and Maintenance Costs [1]					Discounting Calculations	
	(a)	(b)	(c) & (d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs
2009						$ -	1.000	$ -
2010						$ -	0.943	$ -
2011 [1]	$ 56,325	$ -	$ -	$ -	$ -	$ 56,325	0.890	$ 50,129
2012 [2]	$ 61,105	$ -	$ -	$ -	$ -	$ 61,105	0.840	$ 51,328
2013		$ -	$ -	$ -	$ -	$ -	0.792	$ -
2014		$ -	$ -	$ -	$ -	$ -	0.747	$ -
2015		$ -	$ -	$ -	$ -	$ -	0.705	$ -
						Total Present Value of Discounted Costs		$ 101,457

Notes

[1] Assumed 50% of Pond-Poso Construction Tasks and 50% of all Tasks will be expended in Year 1 (2011).

[2] Assumed remaining 50% of Pond-Poso Construction Tasks, all Turnipseed Construction Tasks, and remaining 50% of all Tasks will be expended in Year 2 (2012).

7.4 Project 4 – On-Farm Mobile Lab, Water Use Efficiency Services

Project 4 would provide on-farm Mobile Lab evaluation of irrigation systems by North West Kern Resource Conservation District (NWKRCD) through its Water Use Efficiency Services. Overall they will provide irrigation efficiency assessments to at least 12,000 acres in the Region. The Mobile Lab will provide assistance to agricultural landowners in the Region that consists of on-farm irrigation system evaluations and would be available to farms of all sizes. Contact will be made directly with growers that might benefit from an on-farm analysis within water districts of the Region. On-site follow-ep assessments are made to evaluate the increase in efficiency due to implementation of recommended measures.

7.4.1 Costs

The On-Farm Mobile Lab, Water Use Efficiency Services Project (Project 4 or Project) has an estimated project cost of $300,240. The Poso Creek RWMG is requesting $100,000 in Prop 84 Implementation Grant funding.

7.4.2 Water Supply Benefits

The benefits of on-farm Mobile Lab evaluation in the Poso Creek Region include increased water supply reliability, minimize water supply costs and improved water quality. Direct benefits include increased water supply reliability as well as minimized water supply costs due to improved water use efficiency and less energy used.

Indirect benefits include improved ground-water quality due to unnecessary application of nutrients and subsequent leaching to ground water. The benefits associated with Project are summarized in Exhibits 7.4-1 and 7.4-2.

Exhibit 7.4-1
Project 4 Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Increase water supply reliability.	Qualitative	Local
Water Quality and Other Benefits		
Improved ground-water quality	Qualitative	Local
Reduced/avoided operating costs	Qualitative	Local

Exhibit 7.4-2
Project 4 Benefit and Cost Summary

Type of Benefits/Costs	Present Value
Capital and O&M Costs	$300,240
Qualitative Benefits	**Qualitative Indicator**
Improved quality of ground-water	Qualitative +
Reduced/avoided operating costs	Qualitative +
Increase water supply reliability.	Qualitative ++
Notes: *+ indicates net benefits are likely to increase* *++ indicates net benefits are likely to increase significantly* *O&M = operations and maintenance*	

7.4.2.1 Increased Water Supply Reliability

Improvements in on-farm water use efficiency helps growers deal with the ever challenging influences on the Regions water supplies. By improving the irrigation distribution uniformity, growers will be able to make better use of limited supplies or achieve better crop yields. While it is difficult to quantify specific savings, the benefit is mentioned as a qualitative benefit.

7.4.3 Distribution of Benefits and Identification of Beneficiaries

The improved irrigation efficiency would benefit all water users in the Region. Improvements in water quality would benefit all residents within the Region as well.

7.4.4 Benefits Timeline

The estimated life of the Project is 2 years, however benefits would continue over the entire period of analysis, which is 20 years beginning in 2011. The Project will begin in 2011, and benefits will begin to accrue immediately and increase throughout the 2 years of implementation.

7.4.5 Uncertainties

There is uncertainty regarding the percent efficiency improvements expected in the various water systems to be evaluated.

7.4.6 Potential Adverse Effects

The Project will cause no adverse impacts.

7.4.7 Summary of Findings

Project benefits due to on-farm Mobile Lab evaluation of irrigation systems include increased water supply reliability, minimize water supply costs and improved water quality. Direct benefits include increased water supply reliability and minimized water supply costs. Indirect benefits include improved ground-water quality.

7.4.8 Appendices

There are no appendices for this Section.

7.4.9 Tables

Table 7 - Project 4 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 4 - On-Farm Mobile Lab, Water Use Efficiency Services

		(a)	(b)	(d)	(e)
Task	**Budget Category**	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration	***$3,000***	***$ -***	***$3,000***	
	Task 2 - Labor Compliance Program	***$ -***	***$ -***	***$ -***	
	Task 3 - Reporting	***$9,500***	***$ -***	***$9,500***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$1,700*	*$ -*	*$1,700*	
	Task 3.2 - Quarterly Reporting	*$2,600*	*$ -*	*$2,600*	
	Task 3.3 - Annual Reporting	*$2,600*	*$ -*	*$2,600*	
	Task 3.4 - Final Report	*$2,600*	*$ -*	*$2,600*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$ -***	***$ -***	***$ -***	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$177,500***	***$100,000***	***$277,500***	
	Task 6 - Design	***$ -***	***$ -***	***$ -***	
	Task 7 - Environmental Documentation	***$ -***	***$ -***	***$ -***	
	Task 8 - Permitting	***$ -***	***$ -***	***$ -***	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	***$ -***	***$ -***	***$ -***	

Table 7 - Project 4 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 4 - On-Farm Mobile Lab, Water Use Efficiency Services

		(a)	(b)	(d)	(e)
Task	**Budget Category**	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Task 10 - Construction	***$ -***	***$ -***	***$ -***	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	***$ -***	***$ -***	***$ -***	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management	***$ -***	***$ -***	***$ -***	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$10,240**	**$ -**	**$10,240**	
(h)	**Construction/Implementation Contingency**	**$ -**	**$ -**	**$ -**	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ 200,240**	**$ 100,000**	**$ 300,240**	**67%**

See Appendix 4.4-1 - Project 4 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 4: On-Farm Mobile Lab, Water Use Efficiency Services

Year	Initial Costs	Operations and Maintenance Costs [1]					Discounting Calculations	
	(a)	(b)	(c) & (d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs
2009						$ -	1.000	$ -
2010					$ -	$ -	0.943	$ -
2011	$ 150,120	$ -	$ -	$ -	$ -	$ 150,120	0.890	$ 133,607
2012	$ 150,120	$ -	$ -	$ -	$ -	$ 150,120	0.840	$ 126,101
2013		$ -	$ -	$ -	$ -	$ -	0.792	$ -
2014		$ -	$ -	$ -	$ -	$ -	0.747	$ -
2015		$ -	$ -	$ -	$ -	$ -	0.705	$ -
						Total Present Value of Discounted Costs		$ 259,708

Notes

Assumed 50% of Project costs will be expended in Year 1 (2011), with the remaining 50% expended in Year 2 (2012).

7.5 Project 5 – DAC Fund for Feasibility-Level Studies and Well Destruction Program

Project 5 will address critical water supply needs in Disadvantaged Communities (DACs) by providing funding for project development and proper well destruction not available from other sources. Project funding will be used to:

- Perform feasibility and engineering studies necessary to construct facilities to solve defined water supply problems, in 5 DACs and
- Buy down the cost of destroying unused wells that pose a threat to DAC water supplies.

The DAC communities do not have the resources to fund feasibility studies and engineering design needed to seek and secure future grant funding to construct facilities that would mitigate water quality concerns. As a result of the Project, each DAC will have the necessary materials to proceed with application for project construction funding and subsequently request construction bids.

Owners typically regard unused wells as potential backup in the event that additional supplies are needed. However, these older wells were often constructed without regard to isolating poor quality zones or deteriorate with time, in either case allowing poor quality water to enter higher quality production zones. This can contribute significantly to water quality problems in or in close proximity to urban supply wells. The two most common contaminants in DAC water supply wells which are regulated by primary health standards are Arsenic and Nitrate (discussed below). Both contaminants are difficult and very expensive remove once in a domestic water supply source. An additional contaminant that is being detected through the Central Valley of California with a pending health standard is 1,2,3-trichloropropane ("TCP").

Benefits of Feasibility and Engineering Studies

The benefits of providing funding to develop five DAC projects include avoiding the drilling and development of new wells to address water quality issues, financial sustainability for community and public water systems, improvement of supply reliability, improvement of water quality, and protection of public health. Direct benefits include increased property values, and reduced medical health costs. The benefits associated with developing DAC benefits are summarized in Exhibits 7.5-1 and 7.5-2.

EXHIBIT 7.5-1
Project 5 DAC Project Development Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Increased Water Supply Reliability	Qualitative	Local
Water Quality Benefits		
Improved Quality In Potable Supply	Qualitative	Local
Other Benefits		
Reduced Medical Health Costs		
Increased Property Values	Qualitative	Local
Improved Disposal Of Treatment Residue (Lost Hills)	Qualitative	Local

EXHIBIT 7.5-2
Project 5 DAC Project Development Benefit and Cost Summary

Type of Benefits/Costs	Present Value
Capital and O&M Costs	$729,260
Quantitative Benefits	
Increased Property Values	Qualitative
Qualitative Benefits	**Qualitative Indicator**
Increased Water Supply Reliability	MCL Standards Met.++
Reduced Medical Health Costs	Lower Incidents of As And NO3 Related Conditions.+
Improved Disposal of Treatment Residue (Lost Hills)	Lower Disposal Costs.+

Notes:
+ indicates net benefits are likely to increase
++ indicates net benefits are likely to increase significantly
O&M = operations and maintenance

Benefits of Destruction of Problem Wells

Destruction of problem wells will reduce or eliminate transport of Arsenic (As), Nitrate (NO3) and other contaminants of concern into aquifer zones supplying water to DAC communities. The benefits of destroying problem wells include improvement of ground-water quality, leading to improvement of sources of DAC water supply and protection of public health. Direct benefits include reduced medical health costs. The benefits associated with developing DAC benefits are summarized in Exhibits 7.5-3 and 7.5-4.

EXHIBIT 7.5-3
Project 5 Destruction of Problem Wells Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Increased Water Supply Reliability	Qualitative	Local
Water Quality Benefits		
Improved Quality In Potable Supply	Qualitative	Local
Other Benefits		
Reduced Medical Health Costs		

EXHIBIT 7.5-4
Project 5 Destruction of Problem Wells Benefit and Cost Summary

Type of Benefits/Costs	Present Value
Capital and O&M Costs	$383,455
Quantitative Benefits	
Qualitative Benefits	**Qualitative Indicator**
Increased Water Supply Reliability	MCL Standards Met ++
Reduced Medical Health Costs	Lower Incidents of As And NO3 Related Conditions +

Notes:
+ indicates net benefits are likely to increase
++ indicates net benefits are likely to increase significantly
O&M = operations and maintenance

7.5.1 Costs

The cost to implement the DAC Project Design element of Project 5 will be $383,455. Application for funding projects would begin in 2013, however, no estimates regarding project cost and ongoing operational and maintenance costs are possible at this time. The Problem well destruction element would cost an estimated $5,000 per well and would cover 67-75 percent of costs, depending on the actual cost of well destruction. No O&M or ongoing administrative costs are associated with well destruction.

7.5.2 Water Supply Benefits

7.5.2.1 Avoided Water Supply Purchases

The benefits of providing funding to develop 5 DAC projects include improvement of supply reliability, improvement of water quality, and protection of public health. Providing funding for water system improvements would increase reliability and may increase the volume of

high quality water available for use in the DACs. However, since the studies are not yet complete, the value of these improvements cannot be quantified.

Destruction of problem wells will reduce or eliminate transport of Arsenic and Nitrate into aquifer zones supplying water to DAC communities. The benefits of Destruction of problem wells include improvement of groundwater quality, leading to improvement of sources of DAC water supply and protection of public health.

If the Project is not implemented, these communities could be faced with treating the available water or finding an alternative source, both beyond the means of the communities to pay on their own.

7.5.3 Distribution of Benefits and Identification of Beneficiaries

The improved water supply will benefit the residents of each of the 5 DAC communities receiving founding for project development. Improved health would benefit the residents of each DAC directly and the taxpayers of the County of Kern with lower support necessary to health care for the needy.

7.5.4 Benefits Timeline

The estimated life of the DAC project development studies is 2 years. The estimated life of the well destruction program is 3 years. The Project will begin in 2011, and benefits of well destruction will begin late in year 2011, because identification of problem wells and arranging for destruction work will take several months. The DAC project development studies are expected to be complete within two years (2013) and the benefits of the studies would begin once the projects are actually implemented. No estimate is provided of implementation, because future conditions that acre-feet funding for projects cannot be predicted.

7.5.5 Uncertainties

There is uncertainty regarding the benefits of improved water quality. The levels and timing of improvement are uncertain. The level of current health costs due to poor water quality and potential health improvements are not known.

7.5.6 Potential Adverse Effects

The well destruction element of the Project will cause minor temporary disturbances that will be mitigated, and there are no long term impacts expected as a result of the Project. Any unforeseen temporary impacts will be mitigated.

7.5.7 Summary of Findings

Project benefits will occur from the improved water quality and avoided health costs. Because these benefits are only discussed qualitatively, monetized benefits claimed for this Project cannot be estimated, but may be significant in the long run due to improved health.

7.5.8 Appendices

No Appendices.

7.5.9 Tables

Table 7 – Project 5	Costs
Table 11 – Project 5	Annual Cost of Project

Table 7 - Project 5 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 5 - DAC Fund for Feasibility-Level Studies and Well Destruction Program

		(a)	(b)	(d)	(e)
Task	**Budget Category**	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration	***$5,100***	***$ -***	***$5,100***	
	Task 2 - Labor Compliance Program	***$1,400***	***$ -***	***$1,400***	
	Task 3 - Reporting	***$15,000***	***$ -***	***$15,000***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$3,000*		*$3,000*	
	Task 3.2 - Quarterly Reporting	*$5,000*	*$ -*	*$5,000*	
	Task 3.3 - Annual Reporting	*$3,000*	*$ -*	*$3,000*	
	Task 3.4 - Final Report	*$4,000*	*$ -*	*$4,000*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$ -***	***$ -***	***$ -***	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$ -***	***$250,000***	***$250,000***	
	Task 6 - Design	***$ -***	***$ -***	***$ -***	
	Task 7 - Environmental Documentation	***$ -***	***$ -***	***$ -***	
	Task 8 - Permitting	***$ -***	***$ -***	***$ -***	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	***$ -***	***$ -***	***$ -***	
	Task 10 - Construction	***$ -***	***$ -***	***$ -***	

Table 7 - Project 5 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 5 - DAC Fund for Feasibility-Level Studies and Well Destruction Program

		(a)	(b)	(d)	(e)
Task	**Budget Category**	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	***$ -***	***$ -***	***$ -***	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management	***$ -***	***$150,000***	***$150,000***	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	***$10,240***	***$ -***	***$10,240***	
(h)	**Construction/Implementation Contingency**	***$ -***	***$ -***	***$ -***	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ 31,740**	**$ 400,000**	**$ 431,740**	**7%**

See Appendix 4.5-1 - Project 5 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.
No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 5: DAC Fund for Feasibility-Level Studies and Well Destruction Program

Year	Initial Costs	Operations and Maintenance Costs [1]					Discounting Calculations	
	(a)	(b)	(c) & (d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs
2009						$ -	1.000	$ -
2010					$ -	$ -	0.943	$ -
2011[1]	$ 415,870				$ -	$ 415,870	0.890	$ 370,124
2012 [2]	$ 15,870				$ -	$ 15,870	0.840	$ 13,331
2013		$ -	$ -	$ -	$ -	$ -	0.792	$ -
2014		$ -	$ -	$ -	$ -	$ -	0.747	$ -
2015		$ -	$ -	$ -	$ -	$ -	0.705	$ -
							Total Present Value of Discounted Costs	$ 383,455

Notes

[1] DAC Feasibility Study and Well Destruction Fund established in Year 1 (2011), and 50% of Task costs expended in Year 1.

[2] Remaining 50% of Task costs expended in Year 2 (2012).

7.6 Project 6 – Consolidation of Bishop Acres into City of Shafter Water Supply System

Project 6 will consolidate a "standalone" water well and distribution system serving the unincorporated community of Bishop Acres with the water supply and distribution system of the City of Shafter so as to increase the level of service and reliability of Bishop Acre's water supply. The City would modify its system to include the following:

- Approximately 800 linear feet of water distribution main under 16-inches in diameter to Bishop Acres
- Approximately 275 feet of boring, casing and carrier pipe across BNSF rail mainline and County of Kern roadway Santa Fe Way
- New valves and control equipment at the interconnection
- Rehabilitation and automation of the existing Bishop Acres well

The benefits of interconnecting the 26 households in Bishop Acres to the City's service area include improved operability and reliability of delivery to the Bishop Acres and increased operational flexibility of the City system as a whole due to acquisition of an additional supply well. The City currently operates about 4,000 connections. Direct benefits include reduced supply interruptions to the Bishop Acres area and opportunity to blend multiple sources to optimize water quality.

Indirect benefits include better management of the costs of delivering water to the City's customer base and resulting control of delivery costs. Both Bishop Acres and the City of Shafter are classified as DACs. The benefits associated with Project are summarized in Exhibits 7.6-1 and 7.6-2.

EXHIBIT 7.6-1
Project 6 Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Increase Water Supply Reliability	Qualitative	Local
Other Benefits		
Reduced/Avoided Operating Costs	Qualitative	Local
Improved Quality of Water Delivered	Qualitative	Local

EXHIBIT 7.6-2
Project 6 Benefit and Cost Summary

Type of Benefits/Costs	Present Value
Capital and O&M Costs	**$384,493**
Qualitative Benefits	**Qualitative Indicator**
Reduced/Avoided Operating Costs	Reduced O&M due to limiting use of existing well$6,000/yr, Eliminating Third Party System Operation and Consolidating with City's Operation…$6,000/yr
Increase Water Supply Reliability.	Qualitative +
Improved Quality Of Water Delivered	Qualitative +

Notes:
+ indicates net benefits are likely to increase
++ indicates net benefits are likely to increase significantly
O&M = operations and maintenance

7.6.1 Costs

The Consolidation of Bishop Acres into City of Shafter Water Supply System Project (Project 6 or Project) has an estimated project cost of $444,500 (Table 7 – Project 6). The Poso Creek Regional Water Management Group (Poso RWMG) is requesting $444,500 in Prop 84 Implementation Grant funding. The requested grant funding will be applied toward consolidating Bishop Acres with the City of Shafter supply system. As this is a DAC Project, a funding match is not required. There are no other "Non-State" Matching Funds. The total present value of the Project is $384,493 (Table 11 – Project 6).

7.6.2 Water Supply Benefits

7.6.2.1 Reduced/Avoided Operating Costs

The Bishop Acres Mutual Water Company has to spend approximately$3,000 for every well service interruptions in its service area and no funds to properly maintain the well to minimize service disruptions. By connecting to the City's system these interruptions could be avoided. In addition, integration with a lager system should bring some economies of scale in routine maintenance and other overhead costs. By integrating with the City system, Bishop Acres customers should avoid approximately $160,000 over the 20 year life of the project.

Cost to consolidate the Bishop Acres system with the City of Shafter without grant funds would be approximately $12,000 per household.

7.6.3 Appendices

There are no appendices in this section.

7.6.4 Tables

Table 7 - Project 6 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 6 - Consolidation of Bishop Acres into City of Shafter Water Supply System

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration (1% of Construction Cost + Permitting Cost)	***$ -***	***$3,200***	***$3,200***	
	Task 2 - Labor Compliance Program	***$ -***	***$15,000***	***$15,000***	
	Task 3 - Reporting	***$ -***	***$10,100***	***$10,100***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$ -*	*$1,000*	*$1,000*	
	Task 3.2 - Quarterly Reporting	*$ -*	*$5,400*	*$5,400*	
	Task 3.3 - Final Report	*$ -*	*$3,700*	*$3,700*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$ -***	***$ -***	***$ -***	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$ -***	***$ -***	***$ -***	
	Task 6 - Design	***$ -***	***$11,100***	***$11,100***	
	Task 7 - Environmental Documentation	***$ -***	***$ -***	***$ -***	
	Task 8 - Permitting	***$ -***	***$5,000***	***$5,000***	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	***$ -***	***$ -***	***$ -***	
	Task 10 - Construction	***$ -***	***$314,500***	***$314,500***	
	Task 10.1 - Mobilization and Site Prep	*$ -*	*$15,000*	*$15,000*	
	Mobilization	$ -	$15,000	$15,000	
	Task 10.2 - Project Construction	*$ -*	*$289,500*	*$289,500*	
	Traffic Control	$ -	$10,000	$10,000	
	New City PVC Water Main	$ -	$40,000	$40,000	
	Bore Under BNSF Railway and County Roadways	$ -	$110,000	$110,000	
	Obtain and Install 2-Gate Valves	$ -	$5,000	$5,000	

Table 7 - Project 6 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 6 - Consolidation of Bishop Acres into City of Shafter Water Supply System

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Install 2-Fire Hydrants	$ -	$7,000	$7,000	
	SCADA/PLC Integration	$ -	$100,000	$100,000	
	Meter Updates for Customers	$ -	$7,500	$7,500	
	Water System Tie-in	$ -	$10,000	$10,000	
	Task 10.3 - Performance Testing	*$ -*	*$10,000*	*$10,000*	
	Testing and Inspection	$ -	$10,000	$10,000	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	***$ -***	***$10,200***	***$10,200***	
	Task 11.1 - Pre-Construction Survey	*$ -*	*$10,200*	*$10,200*	
	Task 11.2 - Verify Environmental Compliance	*$ -*	*$ -*	*$ -*	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management (7% of Construction Cost + Permitting Cost)	***$ -***	***$22,400***	***$22,400***	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$ -**	**$5,100**	**$5,100**	
(h)	**Construction/Implementation Contingency (15% of Construction Cost + Permitting Cost)**	***$ -***	***$47,900***	***$47,900***	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ -**	**$ 444,500**	**$ 444,500**	**0%**

See Appendix 4.6-1 - Project 6 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 6: Consolidation of Bishop Acres into City of Shafter Water Supply System

Year	Initial Costs	Operations and Maintenance Costs [1]						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operation	Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs
2009							$ -	1.000	$ -
2010							$ -	0.943	$ -
2011	$ 222,250	$ -	$ -	$ -	$ -	$ -	$ 222,250	0.890	$ 197,803
2012	$ 222,250	$ -	$ -	$ -	$ -	$ -	$ 222,250	0.840	$ 186,690
2013		$ -	$ -	$ -	$ -	$ -	$ -	0.792	$ -
2014		$ -	$ -	$ -	$ -	$ -	$ -	0.747	$ -
2015		$ -	$ -	$ -	$ -	$ -	$ -	0.705	$ -
							Total Present Value of Discounted Costs		$ 384,493

Notes:

Assumed 50% of Project costs will be expended in Year 1 (2011), with the remaining 50% expended in Year 2 (2012).

7.7 Project 7 – City of Shafter, North Shafter Sewer Hook-up Reimbursement Fund

The City of Shafter is currently implementing a State-funded project to extend City sewer mains to the communities of North Park and North Shafter. The ongoing project does not yet have funding for the service connections to the new main lines. Without additional funding, residents in these areas will have to rely on outdated and failing septic tanks and leach fields. Some households use deep seepage pits that drain the septic tank leachate closer to the groundwater. In 2005, 71% of the area's 240 properties reported failing septic systems and/or use of grey-water disposal into their lawns to avoid overloading of septic systems and reduce septic tank pumping. North Shafter residents report that many are forced to have their septic tanks pumped three or more times per year. The City of Shafter and Regional Water Quality Control Board have declared a potential pollution problem for the area based on local well contamination from failing septic systems.

The benefits of providing sewer service to these portions of the City include elimination of sources of ground water pollution, protection of public health and increasing the amount of treated sewage effluent available for recharge. Direct benefits include avoided costs of annual (or more frequent) septic tank pump-out, avoided costs of city spill response, increased property values, reduced medical health costs, and reduce risk for lawsuits, insurance and legal fees. The benefits associated with Project 7 are summarized in Exhibit 7.7-1. A comparison of the costs and benefits is provided in Exhibit 7.7-2.

EXHIBIT 7.7-1
Project 7 Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Increased Ground Water Supply	Monetized	Local
Water Quality Benefits		
Avoided Septic System Service	Monetized	Local
Avoided City Spill Response	Monetized	Local
Other Benefits		
Increased Property Values	Monetized	Local
Reduced Medical Health Costs	Monetized	Local
Improved Air Quality (Pump-out Trucks)	Qualitative	Local

EXHIBIT 7.7-2
Project 7 Benefit Cost Summary

Type of Benefits/Costs	Present Value
Capital And O&M Costs	$479,187
Quantitative Benefits	
Increased Groundwater Supply	$309,690
Avoided Septic System Service	$500,000
Increased Property Values	$2,400,000
Qualitative Benefits	**Qualitative Indicator**
Reduced Medical Health Costs	+
Improved Air Quality (Pump-out Trucks)	+

Notes:
+ indicates net benefits are likely to increase with Project
++ indicates net benefits are likely to increase significantly with Project
O&M = operations and maintenance

7.7.1 Costs

The cost to implement Project 7, will be approximately $540,000 for hookups with the 80 percent hook-up costs Project spent in the first year and 20 percent in the second year. The City has committed to integrating the service areas into its current residential billing structure for sewer service which currently is $21.60 per month for an apartment and $22.40 per month for a home. There will not be separate annual administration costs or annual operation and maintenance costs specific to these areas once their connected. The total present value of costs for the Project over its useful life is $479,187 (Table 11).

7.7.2 Water Supply Benefits

7.7.2.1 Increased Groundwater Supply

The project would divert approximately 100 acre-feet per year to the Shafter sewer treatment facility making approximately 90 acre-feet per year additional high quality recharge available for groundwater extraction in the Shafter area. This would increase the groundwater supply and reduce local over pumping and increase groundwater supply reliability in the future. The avoided cost of purchasing this water would be $27,000 per year using the $300/acre-foot alternative water supply costs identified with Projects 1 and 2. The Present Value of this average annual supply over the 20-year life of the project is about $309,690 ($27,000*11.47). Note that these benefits are not calculated using economic tables and therefore not included in the B/C Ratio calculation.

7.7.3 Distribution of Benefits and Identification of Beneficiaries

The avoided groundwater pumping and supply reliability enhancement will be a benefit to the residents within the service areas of the City of Shafter.

7.7.4 Benefits Timeline

The estimated life of the Project is over the entire period of analysis, 20 years beginning in 2012. The Project will begin in 2011, and benefits will begin in full in year 2012, acre-feet all hookups occur.

7.7.5 Uncertainties

There is uncertainty regarding the benefits from increased water supply. The analysis is based value of imported water. Unforeseen regulation and changes in historical hydrology due to global climate change and an increasing population are factors that may significantly increase benefits.

7.7.6 Potential Adverse Effects

The Project will some cause minor and temporary disturbances that will be mitigated by the City and its representatives and there will be no long term impacts expected as a result of the Project.

7.7.7 Summary of Findings

The water supply benefits of the Project will be from the increased groundwater recharge. The benefits would be addition of approximately 90 acre-feet per year of water at a present value of $309,690 to the local groundwater supply which would not occur without Project implementation.

7.7.8 Appendices

No Appendices.

7.7.9 Tables

Table 7 – Project 7	Costs
Table 11 – Project 7	Annual Cost of Project

Table 7 - Project 7 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 7 - North Shafter Sewer Hook-up Reimbursement Fund

		(a)	(b)	(d)	(e)
Task	**Budget Category**	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration	***$5,000***	***$ -***	***$5,000***	
	Task 2 - Labor Compliance Program	***$1,400***	***$ -***	***$1,400***	
	Task 3 - Reporting	***$10,600***	***$ -***	***$10,600***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$1,700*	*$ -*	*$1,700*	
	Task 3.2 - Quarterly Reporting	*$2,900*	*$ -*	*$2,900*	
	Task 3.3 - Annual Reporting	*$3,000*	*$ -*	*$3,000*	
	Task 3.4 - Final Report	*$3,000*	*$ -*	*$3,000*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	***$ -***	***$ -***	***$ -***	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	***$13,000***	***$480,000***	***$493,000***	
	Task 5.1 - Develop Implementation Measures for Reimb. Fund	*$4,600*	*$ -*	*$4,600*	
	Task 5.2 - Establish Reimb. Fund	*$0*	*$480,000*	*$480,000*	
	Task 5.3 - Administer Reimb. Fund	*$8,400*	*$ -*	*$8,400*	
	Task 6 - Design	***$ -***	***$ -***	***$ -***	
	Task 7 - Environmental Documentation	***$ -***	***$ -***	***$ -***	
	Task 8 - Permitting	***$ -***	***$ -***	***$ -***	

Table 7 - Project 7 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 7 - North Shafter Sewer Hook-up Reimbursement Fund

		(a)	(b)	(d)	(e)
Task	**Budget Category**	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	**$ -**	**$ -**	**$ -**	
	Task 10 - Construction	**$ -**	**$ -**	**$ -**	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	**$ -**	**$ -**	**$ -**	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management	**$ -**	**$ -**	**$ -**	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$5,100**	**$ -**	**$5,100**	
(h)	**Construction/Implementation Contingency (5% of Assessment and Evaluation Cost)**	**$25,000**	**$ -**	**$25,000**	
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ 60,100**	**$ 480,000**	**$ 540,100**	**11%**

See Appendix 4.7-1 - Project 7 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 7: North Shafter Sewer Hook-up Reimbursement Fund

Year	Initial Costs	Operations and Maintenance Costs [1]					Discounting Calculations	
	(a)	(b)	(c) & (d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operations & Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs
2009						$ -	1.000	$ -
2010					$ -	$ -	0.943	$ -
2011 [1]	$ 510,050	$ -	$ -	$ -	$ -	$ 510,050	0.890	$ 453,945
2012 [2]	$ 30,050	$ -	$ -	$ -	$ -	$ 30,050	0.840	$ 25,242
2013		$ -	$ -	$ -	$ -	$ -	0.792	$ -
2014		$ -	$ -	$ -	$ -	$ -	0.747	$ -
2015		$ -	$ -	$ -	$ -	$ -	0.705	$ -
						Total Present Value of Discounted Costs		$ 479,187

Notes:

[1] Sewer Hook-up Reimbursement Fund established in Year 1 (2011), and 50% of Task costs expended in Year 1.

[2] Remaining 50% of Task costs expended in Year 2 (2012).

7.8 Project 8 – City of Shafter; Provide Water Meters in Severely Disadvantaged Community Service Areas

The City of Shafter has approximately 600 meters to retrofit and update per the City's new Automatic Meter Reading (AMR) standard (in the areas surrounding the City that have, in the past, connected their drinking water systems with the City. These connected areas include North Shafter, South Shafter and Southwest Shafter water improvement areas. Specific communities that would benefit include the Mexican Colony, Cherokee Strip, Smith's Corner, North Shafter, North Park, North Shafter Farm Labor Camp, Thomas Lane, former Burbank Water System, etc. Most of these are unincorporated water customers that have switched over to the City system because of costs or water quality issues that they could not address without a consolidation.

The benefits of having these outside the City connections equipped with meters and radios to transmit consumption electronically include avoided costs for retrofitting and labor for manual reads which would in turn avoid costs pass onto severely disadvantaged communities. Direct benefits include avoided one-time costs of meter purchase and installation as well as avoided ongoing costs of manual meter readings. Indirect benefits include reduced air pollution and increased ability to detect leaks and promote water conservation. The benefits associated with Project 8 are summarized in Exhibit 7.8-1. A comparison of the costs and benefits is provided in Exhibit 7.8-2.

EXHIBIT 7.8-1
Project 8 Benefit Overview

Type of Benefit	Assessment	Beneficiaries
Water Supply Benefits		
Increased Ground Water Supply	Qualitative	Local and Regional
Water Quality Benefits		
Other Benefits		
Reduced/avoided operating costs	Monetized	Local
Reduced meter installation costs	Monetized	Local
Improved Air Quality (Meter Reader Trucks)	Qualitative	Local and Regional
Improved leak detection and control	Qualitative	Local

EXHIBIT 7.8-2
Project 8 Benefit Cost Summary

Type of Benefits/Costs	Present Value
Capital and O&M Costs	$501,112
Quantitative Benefits	
Reduced/avoided operating costs	$36,000 per year for manual meter reads $349,639
Reduced meter installation costs	$800 per meter installation $480,000 – one time savings
Qualitative Benefits	**Qualitative Indicator**
Increased Groundwater Supply	Reduction of water unaccounted for in system
Improved Air Quality (Meter Reader Trucks)	+ (Reduction of Meter reader trucks)
Improved leak detection and control	++

Notes:
+ indicates net benefits are likely to increase with Project
++ indicates net benefits are likely to increase significantly with Project
O&M = operations and maintenance

7.8.1 Costs

The cost to implement the Project will be approximately $579,320 (Table 7 – Project 8) with the 50 percent of the meter installation costs spent in the first year and 50 percent in the second year. The City has committed to integrating the cost savings into its water enterprise financial plan which is used to set service billing rates. The total present value of costs for the Project over its construction period is $501,112 (Table 11 – Project 8).

A rough estimate of installation and annual operating costs for the 15-year life of the meters can be determined by looking at the up-front capital and installation costs plus the annual operations costs. For this Project the cost of $579,000 is divided by 15 years for 15-year life of meters. The annual cost is $38,600 per year.

7.8.2 Water Supply Benefits

7.8.2.1 Reduced Costs of a DAC Water Supply

The project would result in installation of approximately 600 water meters that would save the City operational costs of installing and reading meters in DAC service areas. The City has committed to integrating the cost savings into its water enterprise financial plan which is used to set service billing rates. It is estimated that the annual savings per customer would be $60 on their water bill. (($75/hr X 8hr/day X 5 day/mo X 12mo/yr) / 600) For the 600 meters, this equates to a savings of $36,000 per year. The present value of the savings over

the 15 year life would be $349,639 (36,000*9.7122). Note that these benefits are not calculated using economic tables and therefore not included in the B/C Ratio calculation.

7.8.3 Distribution of Benefits and Identification of Beneficiaries

The cost savings of new meters will be a benefit to the residents within the service areas of the City of Shafter in which they are installed.

7.8.4 Benefits Timeline

The estimated life of the Project is over the entire period of analysis, 15 years beginning in 2012. The Project will begin in 2011, and benefits will begin in full in year 2012, after all meters are installed.

7.8.5 Uncertainties

There is little uncertainty regarding the benefits from new meters. AMR meters have proven to be a more efficient, effective and accurate way of reading water meters and billing customers for meter usage. All right-of-way and operational authority is in place to implement the project.

7.8.6 Potential Adverse Effects

The Project will cause some minor and temporary disturbances which can be mitigated by the City and its representatives and but there will be no long term impacts expected as a result of the Project.

7.8.7 Summary of Findings

The water supply benefits of the Project will be from cost savings of installing new meters and potential water conservation associated with awareness of water use. The benefits will be to the residents within the service areas of the City of Shafter in which they are installed. The present value of the savings over the 15 year life would be $349,639.

7.8.8 Appendices

There are no appendices in this section.

7.8.9 Tables

Table 7 – Project 8	Costs
Table 11 – Project 8	Annual Cost of Project

Table 7 - Project 8 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 8 Title - Meter Installation in DAC Service Area

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
(a)	**Direct Project Administration**				
	Task 1 - Project Administration (1% of Construction Cost)	**$ -**	***$4,650***	***$4,650***	
	Task 2 - Labor Compliance Program	**$ -**	***$1,400***	***$1,400***	
	Task 3 - Reporting	**$ -**	***$10,150***	***$10,150***	
	Task 3.1 - Monthly Reporting at Poso Creek RWMG Meeting	*$ -*	*$1,000*	*$1,000*	
	Task 3.2 - Quarterly Reporting	*$ -*	*$3,050*	*$3,050*	
	Task 3.3 - Annual Report	*$ -*	*$3,050*	*$3,050*	
	Task 3.4 - Final Report	*$ -*	*$3,050*	*$3,050*	
(b)	**Land Purchase/Easement**				
	Task 4 - Land Purchase/Easement	**$ -**	**$ -**	**$ -**	
(c)	**Planning/Design/Engineering/ Environmental Documentation**				
	Task 5 - Assessment and Evaluation	**$ -**	**$ -**	**$ -**	
	Task 6 - Design	**$ -**	**$ -**	**$ -**	
	Task 7 - Environmental Documentation	**$ -**	**$ -**	**$ -**	
	Task 8 - Permitting	**$ -**	**$ -**	**$ -**	
(d)	**Construction/Implementation**				
	Task 9 - Construction Contracting	**$ -**	**$ -**	**$ -**	

Table 7 - Project 8 Budget

Proposal Title: Poso Creek IRWMP Prop 84 Implementation Grant Proposal

Project 8 Title - Meter Installation in DAC Service Area

		(a)	(b)	(d)	(e)
	Budget Category	**Non-State Share* (Funding Match)**	**Requested Grant Funding**	**Total**	**% Funding Match**
	Task 10 - Construction	**$ -**	***$465,000***	***$465,000***	
	Task 10.1 Automatic Meter Reading Water Assembly (Meter, ERT & Register)	*$ -*	*$105,000*	*$105,000*	
	Task 10.2 - New Meter Box	*$ -*	*$60,000*	*$60,000*	
	Task 10.3 - Tie-In Assembly and Adjust to Grade	*$ -*	*$300,000*	*$300,000*	
(e)	**Environmental Compliance/ Mitigation Enhancement**				
	Task 11 - Environmental Compliance	**$ -**	**$ -**	**$ -**	
(f)	**Construction Administration**				
	Task 12 - Construction Administration and Management (5% of Construction Cost)	**$ -**	***$23,250***	***$23,250***	
(g)	**Other Costs**				
	Task 13 - Monitoring, Assessment, and Performance Measures	**$ -**	***$5,120***	***$5,120***	
(h)	**Construction/Implementation Contingency (15% of Construction Cost)**	***$ -***	***$69,750***	***$69,750***	0%
(i)	**Grand Total (Sum rows (a) through (h) for each column)**	**$ -**	**$ 579,320**	**$ 579,320**	**0%**

See Appendix 4.8-1 - Project 8 Supplemental Budget Table for detailed district / consulting staff in-kind service hours.

See Appendix 4.8-2 - Project 8 Unit Price Table for detailed Construction Costs

No "Other State Funds" are being used for any budget item, so Column (c) has been removed

Table 11 -Annual Cost of Project

(All costs should be in 2009 Dollars)

Project 8: Meter Installation in DAC Service Area

Year	Initial Costs	Operations and Maintenance Costs [1]						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7	Admin	Operation	Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs
2009							$ -	1.000	$ -
2010							$ -	0.943	$ -
2011	$ 289,660	$ -	$ -	$ -	$ -	$ -	$ 289,660	0.890	$ 257,797
2012	$ 289,660	$ -	$ -	$ -	$ -	$ -	$ 289,660	0.840	$ 243,314
2013							$ -	0.792	$ -
2014							$ -	0.747	$ -
2015							$ -	0.705	$ -
							Total Present Value of Discounted Costs		$ 501,112

Notes

Assumed 50% of Project costs will be expended in Year 1 (2011), with the remaining 50% expended in Year 2 (2012).