

**Consolidated Water Use Efficiency 2002 PSP
 Proposal Part One:
 A. Project Information Form**

1. Applying for (select one): (a) Prop 13 Urban Water Conservation Capital Outlay Grant
 (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
 (c) DWR Water Use Efficiency Project
2. Principal applicant (Organization or affiliation): Bear Valley Community Services District
3. Project Title: Residential ULFT Giveaway
4. Person authorized to sign and submit proposal:
- | | |
|-----------------|-----------------------------------|
| Name, title | <u>John C. Yeakley</u> |
| Mailing address | <u>28999 S. Lower Valley Road</u> |
| Telephone | <u>661.821.4428</u> |
| Fax. | <u>661.821.0180</u> |
| E-mail | <u>bvcsd@csurfers.net</u> |
5. Contact person (if different):
- | | |
|------------------|-----------------------------------|
| Name, title. | <u>John Martin</u> |
| Mailing address. | <u>28999 S. Lower Valley Road</u> |
| Telephone | <u>661.821.4428</u> |
| Fax. | <u>661.821.0180</u> |
| E-mail | <u>bvcsd@csurfers.net</u> |
6. Funds requested (dollar amount): 44000
7. Applicant funds pledged (dollar amount): 12800
8. Total project costs (dollar amount): 56800
9. Estimated total quantifiable project benefits (dollar amount): 124800
 Percentage of benefit to be accrued by applicant: 95
 Percentage of benefit to be accrued by CALFED or others: 5

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)**

10. Estimated annual amount of water to be saved (acre-feet): 8.3
- Estimated total amount of water to be saved (acre-feet): 125
- Over ___ years 15
- Estimated benefits to be realized in terms of water quality, instream flow, other: 0
11. Duration of project (month/year to month/year): 04/02 to 06/04
12. State Assembly District where the project is to be conducted: 34
13. State Senate District where the project is to be conducted: 17
14. Congressional district(s) where the project is to be conducted: 21
15. County where the project is to be conducted: Kern
16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: N/A
17. Type of applicant (select one):
- Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:
- (a) city
 - (b) county
 - (c) city and county
 - (d) joint power authority
 - (e) other political subdivision of the State, including public water district
 - (f) incorporated mutual water company
- DWR WUE Projects: the above entities (a) through (f) or:
- (g) investor-owned utility
 - (h) non-profit organization
 - (i) tribe
 - (j) university
 - (k) state agency
 - (l) federal agency

18. Project focus:

- (a) agricultural
 (b) urban

Consolidated Water Use Efficiency 2002 PSP

Proposal Part One:

A. Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13
Agricultural Feasibility Study Grant
capital outlay project related to:

- (a) implementation of Urban Best Management Practices
 (b) implementation of Agricultural Efficient Water Management Practices
 (c) implementation of Quantifiable Objectives (include QO number(s))

- (d) other (specify)

DWR WUE Project related to:

- (e) implementation of Urban Best Management Practices
 (f) implementation of Agricultural Efficient Water Management Practices
 (g) implementation of Quantifiable Objectives (include QO number(s))
 (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
 (i) research or pilot projects
 (j) education or public information programs
 (k) other (specify)

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

- (a) yes
 (b) no

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One
B. Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

Signature

Name and title

Date

Prop 13 Urban Water Conservation Grant Proposal Part Two

Project Summary

The Bear Valley Community Services District is a member of the California Urban Water Conservation Council, and as such, implements the fourteen best management practices for urban water conservation. Despite our continuing efforts, our implementation of BMP #14, Residential ULFT Retrofits, is far behind schedule. BVCS D offers a \$75 per ULFT rebate to water customers of homes built before 1992. We have issued 146 rebates in the past four years, which is only 28% of our target. We believe that one of the barriers to fuller implementation is the difficulty that homeowners have purchasing the toilets. Bear Valley Springs is a remote resort community located in the Tehachapi Mountains midway between Bakersfield and Lancaster. It is a 55-mile drive to the nearest Home Depot or Lowes' Home Improvement Center. We believe that this barrier can be overcome and greater homeowner participation can be achieved by securing a supply of high-quality ULFTs to distribute right here in our community. We propose to use the grant money to purchase 400 ULFTs at a cost of \$44,000. We expect to distribute all of them over a two-year period. We also propose to increase our rebate to \$100 per ULFT for those customers who prefer to select a different ULFT model than we will offer in our giveaway project. The additional 400 ULFTs, when installed, will provide 8.32 acre feet per year of reliable water savings. Over the useful life of the ULFTs (assumed to be 15 years), we will conserve 125 acre feet of water in this manner.

A. Scope of Work: Relevance and Importance

1. Nature, scope and objectives of the project

BVCS D has 2,400 residential water connections in total, with 1,728 built before 1992. We have developed a target of 130 ULFT retrofits per year based on the implementation schedule in BMP#14. Using a \$75 rebate incentive, we have averaged only 37 per year thus far. The objective of this project is to get as many ULFTs installed in homes built before 1992 in the shortest time possible. Since a \$75 rebate has been inadequate to keep pace with BMP #14's implementation requirements, we want to employ direct distribution of ULFTs in our community. If the grant is awarded, we will purchase 400 ULFTs, store them in our public works warehouse and distribute them at the office, through community-based civic groups and at special events, such as the July 4th community fair.

2. Statement of critical, local, regional, Bay-Delta, state or federal water issues

In 1992, development in Bear Valley Springs reached the point that local water resources (within the Bear Valley Springs watershed) are inadequate to meet peak summer demand. The local watershed provides 750 to 850 acre feet of water annually, depending on precipitation. Approximately 200 acre feet is produced by alluvial wells and another 550 to 650 acre feet is produced by deep hard-rock wells. Any water demand above this is imported from Cummings Valley, an adjudicated basin adjacent to Bear Valley Springs. BVCS D operates a conjunctive-use program in Cummings Valley whereby State Project water is purchased to recharge well water drawn for importation on a one-for-one basis. Any additional supplies imported into Bear Valley Springs has a direct impact on the State Water Project and, therefore, on the Bay-Delta.

Only forty-eight acre feet of water was imported in 1998. This has grown dramatically over the past four years, growing to 219af in 1999, 412af in 2000 and 549af in 2001. This water is not limitless therefore it must be conserved. Moreover, BVCS D is not the only water user in Cummings Valley; there are dozens of farming interests, hundreds of single family residences, an elementary school and a major California Correctional Facility.

Since BVCS D serves less than 3,000 customers and/or less than 3,000 acre feet per year, we are not required to submit a water management plan.

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring and Assessment

1. Methods, procedures and facilities

This is a simple program which requires the following:

- ?? An adequate supply of high-quality ULFTs to be in stock and on hand when the customer is ready to install them.
- ?? Adequate storage space in a protected area to preserve the new condition of the ULFTs
- ?? An effective advertising campaign to generate customer demand for ULFT retrofits.

BVCS D stands ready and able to execute this plan if the grant is awarded.

2. Task list and schedule

The schedule for this project is as follows:

4/15/02	Receive notice of funding
5/1/02	Execute grant contract; do press release to newspapers
6/1/02	Order 400 ULFTs
6/20/02	Receive and warehouse 400 ULFTs
7/4 to 7/6/02	Issue vouchers for free ULFTs to qualifying customer from our water conservation booth at the July 4 th community celebration
8/1 to 9/1/02	Meet with community based civic groups to develop additional distribution channels
by 6/30/03	Distribute 200 ULFTs
by 6/30/04	Distribute 400 ULFTs

3. Monitoring and assessment:

The Project Manager, who is the Assistant General Manager, will ensure that implementation is on pace to meet the distribution target. Adjustments, such as reassignment of resources, advertising thrusts, marketing strategies, etc, will be made as needed to keep implementation on track. Data will be stored in the district's water billing software files, attached to the location maintenance files. All of this information will be fully accessible at all times and can be retrieved using any sort criteria desired.

BVCSD will send a customer satisfaction survey to each customer one year after receiving a free ULFT. The survey will request customer feedback on the operation of their particular ULFT(s) and ask for suggestions of how the program can be improved. We will use the survey results in our future ULFT purchase decisions.

4. Preliminary plans and specifications and certification statements

A total of 400 ULFTs will be purchased at the approximate prices as shown below:

Niagara Flapperless N2216	\$ 91
Gerber Aqua Saver GER-21-702	99
Kohler Wellworth K-3423	113
Toto Carusoe TT-CST713	<u>137</u>
Average price	\$110

* Prices shown include delivery charges.

I hereby certify that the project contained herein (*purchase of 400 residential ULFTs for free distribution and installation in houses built before 1992*) is feasible. I further certify that all quantities, prices, schedules, estimates and other material information is sufficiently accurate and dependable to meet the needs of the grant proposal as specified in the solicitation package.

Signed: _____
John C. Yeakley, P.E.

C. Qualifications of the Applicants and Cooperators

1. Resume of the project manager, see Attachment A
2. External cooperators

BVCSD will seek the assistance of community-based civic and fraternal organizations, including BVS Men's Service Club, BVS Women's Club, BVS Community Council, BVS Sportsmens' Club, Bear Valley Springs Property Owners' Association and Boy Scouts Troop 135. By including these groups, not only will the ULFTs be distributed more quickly, but other water conservation goals will be advanced as members of these groups become familiar with our comprehensive program. As of this writing, the district has no agreement with any of the organizations listed above to assist in the distribution of the ULFTs.

D. Benefits and Costs

1. Budget breakdown and justification

The following figures are estimates to acquire and distribute all 400 ULFTs over a two-year period:

Materials:

100 – Niagara Flapperless N2216	\$ 9100
100 – Gerber Aqua Saver GER-21-702	9900
100 – Kohler Wellworth K-3423	1,1300
100 – Toto Carusoe TT-CST713	<u>1,3700</u>
Total Materials	\$44,000

Advertising	\$ 500
Storage*	800
Distribution*	4,000
Record Keeping*	2,500
Evaluation and Reporting*	<u>5,000</u>
Total Costs	\$56,800

* Most of these costs are for in-house labor.

This grant proposal requests funds only for the purchase of the materials. All other costs of the project will be paid by the district. If the grant is awarded, BVCSD will commit the resources necessary to achieve the distribution of the 400 ULFTs by June 30, 2004.

2. Cost-sharing.

Since BVCSD provides both water and sewer service to Bear Valley Springs, no cost-sharing with other agencies is anticipated.

3. Benefit summary and breakdown

a. quantifiable: Four hundred old, inefficient toilets will be replaced with new, high-quality ultra-low-flush-toilets. At least 200 households will be impacted. Over a fifteen year period 125 acre feet of water will be saved. Using year 2001 dollars, this is a savings to BVCS D of \$119,000 in avoided marginal operating and capacity costs. Every one of the 125 acre feet of water that will be conserved is water that would have come from the Bay-Delta. As stated previously, the Bear Valley Springs watershed has a limited production capacity of 750 to 850 acre feet per year. Our demand reached that limit in 1992 and since then we have had to import water from the State Water Project. Please don't make the mistake of assuming that the savings are realized only during the peak pumping season. Every single acre foot of water saved is a direct benefit to CALFED. As to how much this is worth to CALFED, we can only guess. However, for \$44,000 we can have 400 new ULFTs installed within two years which will save 125 acre feet of water over a fifteen-year period, which calculates out to \$320 per acre foot.

CALFED benefits are assumed to be \$330 per acre foot. This is the figure cited in the CUWCC publication Guidelines for Preparing Cost-Effectiveness Analyses of Urban Water Conservation Best Management Practices for State Water Project water delivered to the Metropolitan Water District of Southern California (page2-10) The dollar value of the CALFED benefits for this project, therefore, is \$41,250 (125af x \$330 each).

b. not quantifiable: At least two hundred households will be added to those who participate in water conservation programs. Many people have doubts as to the usefulness of water conservation fixtures because of the many poor-performing models that were marketed in the early 1990's. This program will help change that impression because we will distribute high-quality ULFTs that work well with the first flush. This will encourage our customers to participate in other water conservation programs as well, not only within Bear Valley Springs, but in any community they might move to.

In addition, if this grant is awarded, it will be the first urban water use efficiency grant awarded to an agency in the San Joaquin Valley area. There has been much focus on agricultural water conservation in Kern County, and rightfully so, however, urban water conservation efforts need to be showcased as well. If this grant is awarded, BVCS D will issue press releases to all local newspapers including the Bakersfield Californian.

Moreover, if this grant is awarded, it will demonstrate to other small water agencies that they too can qualify for water use efficiency grants even though they lack the technical sophistication of larger agencies and can't afford to hire expensive consultants and engineers to chase grants. It will also demonstrate that water use efficiency programs are appropriate for communities that are not in the large metropolitan areas.

4. Assessment of costs and benefits, see Attachment B

E. Outreach, Community Involvement and Acceptance

The ULFTs will be marketed through the BVCS D quarterly newsletter, three local newspapers, our water conservation booth at the July 4th celebration and through local civic groups.

There is no community opposition to this project.

JOHN MARTIN

29541 Butterfield Way • Tehachapi, CA 93561 • 661.821.1516

OBJECTIVE

To secure a Proposition 13 urban water conservation program grant to purchase and distribute 400 residential ultra-low flush toilets by June 30, 2004.

EMPLOYMENT

ASSISTANT GENERAL MANAGER 1993 TO PRESENT
Bear Valley Community Services District Tehachapi, California

Responsibilities include oversight of all financial functions, including budgeting, accounts payable and receivable, payroll, general ledger and reporting, including the analysis of trends and projections; fiduciary duties as Treasurer of the district; administration of the district's injury and illness prevention program as the designated Safety Officer of the district; administration of the water conservation program as the designated Water Conservation Coordinator of the district; administration of the district's emergency preparedness program acting as the liaison with the district's citizen-volunteer Disaster Council; oversight of all office procedures including water billing and related customer service; management of all district functions in the absence of the General Manager.

KEY CARRIER 1976 TO 1993
Vons Grocery Company Bakersfield, California

Responsibilities included supervision of retail store operations during evening hours, including the security of cash, customer service, personnel management, oversight of nighttime stocking operations and store security. The key carrier position was held from 1988 to 1993. Previous to 1988, job responsibilities included receiving clerk, warehouse clerk, checker, stock clerk and courtesy clerk.

EDUCATION

MASTER OF PUBLIC ADMINISTRATION 1996
California State University, Bakersfield Bakersfield, California

BACHELOR OF ARTS; PUBLIC ADMINISTRATION 1992
California State University, Bakersfield Bakersfield, California

SKILLS

Management of a large number of dissimilar tasks simultaneously.
Excellent service to customers and the public in a friendly and professional manner.
Execution of many software programs, including all Microsoft office products (Word, Excel, etc.) and Corel office products (WordPerfect, Quattro Pro, etc.) as well as the Multiple Operations Management Software of Corbin Willits Systems (general ledger, payroll, utility billing, purchase order, accounts payable and receivable, cash management and utility billing).

Attachment B

Cost-Effectiveness Analysis of Proposed BMP 14

Ultra-Low-Flow Toilet Rebate or Replacement Program

This BMP requires each agency to have a program "at least as effective as requiring toilet replacement at time of resale." For the Bear Valley CSD, this would mean replacing approximately 130 toilets per year.¹ Since the district has no authority to regulate the transfer of private property, it cannot require that private property owners replace old toilets with ULFTs upon resale. Cities and counties may be able to exercise this authority but the BVCS D cannot. A program offering rebate incentives or free toilets for pickup is the alternate method available to the district. To determine the cost-effectiveness of this program we must (1) identify costs and benefits, (2) measure and assign values to costs and benefits, (3) discount costs and benefits, (4) determine net present value of program costs and benefits, and (5) analyze uncertainty.

Identify Costs and Benefits

Program **costs** are: (1) cash rebates (or purchase price of free toilet), (2) disposal of old toilets, (3) program administration, rebate processing and database maintenance, (4) advertising, (5) ULFT storage and (6) periodic cost-effectiveness analyses.

Program **benefits** to be considered are: (1) avoided cost for delivering marginal water supply (2) avoided capital costs for future water capacity expansion (3) avoided cost for sewage treatment and (4) avoided capital costs for future sewage capacity expansion.

Of these four categories two will be omitted from the calculation for various reasons. Avoided capital costs for sewer capacity expansion will be omitted because the new wastewater treatment plant, which was completed in 1996, has more than enough capacity to accommodate all sewage flows from the entire sewer area. Moreover, the plant's costs are sunk and were financed by a State Revolving Fund loan with revenues coming from special assessments collected on all properties in Assessment District 95-1, not from sewer rates. We also will not include the avoided cost of treating sewage because the new wastewater plant is oversized and lower sewage flows are actually detrimental to plant processes. Capacity is .25mgd and during the summer influent flows are only .04 to .06mgd, barely enough to keep plant processes going. So, of the four benefit categories, only those pertaining to potable water supply will be counted in the analysis.

Measure and Assign Values to Costs and Benefits

Costs per ULFT retrofit are:

Rebate or free ULFT	\$ 100
Toilet disposal	2
All other costs	<u>18</u>
Total cost per ULFT	\$ 115

Benefits are calculated by (1) determining the marginal cost of potable water delivered by BVCS D, (2) determining the average amount of water saved and (3) calculating the dollar value of avoided water deliveries.

Determining the marginal cost of water. All of BVCS D's marginal water supply comes from Cummings Valley, an adjudicated basin adjacent to Bear Valley Springs. BVCS D produces potable water from wells within Cummings Valley and purchases an equal amount from the Tehachapi-Cummings County Water District to recharge the basin. The water is then pumped over the hill separating the two basins and into the BVCS D

system. The marginal operating cost of potable water, therefore, is the cost to purchase and pump Cummings Valley water plus the variable operating costs to produce and deliver potable water. In fiscal year 2000-01 variable costs were \$63 per acre foot. Only variable costs are considered because fixed costs do not vary with the quantity of water delivered.² Marginal operating costs per acre foot are:

Variable operating costs	\$ 63
Purchase Cummings Valley water	375
Pump CV water to BV main level	<u>181</u>
Total Marginal Operating Cost	\$ 619

Marginal capacity cost is estimated to be \$333 per acre foot.³ The total avoided water supply cost for BVCSD, therefore, is \$952 per acre foot (\$619 + \$333).

Determining the average amount of water saved. Per the BMP, anticipated water savings must be based on the MOU's Exhibit 6, Assumptions and Methodology for Determining Estimates of Reliable Savings from the Installation of ULF Toilets. Exhibit 6 provides water savings figures for both single-family and multi-family dwellings, however, for the purpose of this analysis, only single-family homes will be considered. This is because there are only 69 multi-family units in the service area, out of 1,834 homes built before 1992. Making a separate calculation and perhaps offering a different rebate to this small customer class (4% of total) would not be worthwhile. For the purpose of this program multi-family homes will be considered single-family residences.

For the purpose of this calculation it is assumed that there are 2 toilets⁴ and 2.7 persons⁵ per household. Using the table from Exhibit 6 (Appendix A), we find that average water saved per household is 43.3 gallons per day for all households, however, savings from pre-1980 structures are higher because most of them have 5-gallon-per-flush toilets and savings from homes built from 1980 to 1991 are lower because most of their toilets use 3.5 gallons per flush. Water savings are adjusted using a factor provided in Exhibit 6.⁶ The district serves 1,834 homes built before 1992 of which 417 (22.7%) were built before 1980 and 1,417 (77.3%) were built between 1980 and 1991. Per Exhibit 6 anticipated water savings are calculated as follows:

Pre-1980 homes:	43.3gpd x 1.015 x 22.7%	9.97	
1980-1991 homes:	43.3gpd x 0.812 x 77.3%	+ <u>27.21</u>	
Average water savings per household	37.18		use 37.2

If the average savings for a 2-toilet household is 37.2 gpd then the average savings per toilet is 18.6 gpd. Total annual water savings per ULFT would be 0.0208 acre feet.

Calculating the value of avoided water deliveries. This is simply a matter of multiplying the average marginal cost of water by the amount of water saved, which in this case would be \$19.80 per year (\$952 marginal cost per AF x 0.0208 AF water saved per year). This is the amount calculated for the first year. Figures for subsequent years will be increased by a real escalation rate of 1.5% (assuming water becomes more scarce and, therefore, more expensive over time).

Discount Costs and Benefits

Because costs are incurred up-front when the toilet is replaced and benefits are realized over time, we must discount both over time so we can compare them. The discount rate used is 6%.⁷

Determine Net Present Value of Program Costs and Benefits

Table 1 is the program's net present value calculation. It is assumed that the life span for a ULFT is 15 years and not longer for the following reasons: (1) Bear Valley water is extremely hard, having a total hardness (as CaCO₃) of 169.9 mg/L,⁸ (2) future toilet changes are possible for decorative considerations only, (3) installations will be made in many old houses which will undergo remodeling or demolition and (4) "The physical life span of the stock of ULF toilets is uncertain because, although there are many old toilets, the ULF toilets are of substantially different design."⁹

The analysis shows a positive net present value of \$112.80, so for Bear Valley CSD a \$100 rebate incentive program for ultra-low-flow toilet installation or a free toilet giveaway program is cost-effective. The value of benefits is greater than the value of costs.

TABLE 1		Supplier Perspective Present Value of Costs and Benefits					
		Single Family ULF Toilet Rebate of \$100					
		Undiscounted	Present Value	Undiscounted	Present Value	Net	
	Water Saved	Benefits	Benefits	Costs	Costs	Present	
Year	(AF) [1]	[2]	[3]	[4]	[5]	Value [6]	
0	0.0000	\$0.00	\$0.00	\$115.00	\$115.00	\$(115.00)	
1	0.0208	\$19.80	\$18.68	\$0.00	\$0.00	\$18.68	
2	0.0208	\$20.10	\$17.95	\$0.00	\$0.00	\$17.95	
3	0.0208	\$20.40	\$17.29	\$0.00	\$0.00	\$17.29	
4	0.0208	\$20.71	\$16.70	\$0.00	\$0.00	\$16.70	
5	0.0208	\$21.02	\$16.17	\$0.00	\$0.00	\$16.17	
6	0.0208	\$21.33	\$15.69	\$0.00	\$0.00	\$15.69	
7	0.0208	\$21.65	\$15.25	\$0.00	\$0.00	\$15.25	
8	0.0208	\$21.98	\$14.85	\$0.00	\$0.00	\$14.85	
9	0.0208	\$22.31	\$14.48	\$0.00	\$0.00	\$14.48	
10	0.0208	\$22.64	\$14.15	\$0.00	\$0.00	\$14.15	
11	0.0208	\$22.98	\$13.84	\$0.00	\$0.00	\$13.84	
12	0.0208	\$23.33	\$13.56	\$0.00	\$0.00	\$13.56	
13	0.0208	\$23.68	\$13.30	\$0.00	\$0.00	\$13.30	
14	0.0208	\$24.03	\$13.06	\$0.00	\$0.00	\$13.06	
15	0.0208	\$24.39	\$12.84	\$0.00	\$0.00	\$12.84	
Total	0.3120	\$330.33	\$227.80	\$115.00	\$115.00	\$112.80	
Notes:							

[1] = Savings from replacement of one toilet with a ULFT			
[2] = [1] x (\$952 x (1 + e) x t) where e is the escalation rate (1.5% real) and t is the year			
[3] = [2] / (1 + r) x t where r is the discount rate (6% real)			
[4] = Cost for one UFLT			
[5] = [4] / (1 + r) x t where r is the discount rate (6% real)			
[6] = [3] - [5] is the Net Present Value			

Analyze Uncertainty

The cost-effectiveness analysis presented assumes three critical variables for the calculation, a discount rate of 6%, an escalation rate of 1.5% and a ULFT physical life of 15 years. A sensitivity test of each variable is needed to gain some certainty as to the cost-effectiveness of the program. Following examples given in the CUWCC Guidelines, testing for each variable gives the following net present values:

Variable	Value Tested	Net Present Value
Discount Rate	4%	\$137.51
"	6%	\$112.80
"	8%	\$93.20
Escalation Rate	2.5%	\$128.01
"	1.5%	\$112.80
"	0.5%	\$98.79
Physical Life	20 years	\$174.17
"	15 years	\$112.80
"	10 years	\$46.20

Notes

1. As calculated for BMP report filed 10/27/00.
2. Variable operating overhead costs include repairs, operations, chemicals and outside service. Labor costs are considered fixed because no water department employees have been added over the past 18 years although water production is more than twice what it was 18 years ago.
3. Per 2002 engineer's report for BVCSD water capacity fee: \$5,000 capacity fee per new house or equivalent dwelling unit, which provides 0.5 acre foot of potable water per year per house for construction of wells and pipeline for new water supply. Assuming a 30-year useful life for the new facilities yields a marginal capacity cost of \$333 ($\$5,000 / .5 \text{ acre feet per year} / 30 \text{ years}$).
4. Estimate based on 1990 Census for Bear Valley Springs, average of 6 rooms per house.
5. State average as reported by the California Department of Finance, 1996.
6. Per Exhibit 6 to the MOU, the water savings factor for pre-1980 homes is 1.015 and the factor for 1980-1991 homes is .0812.
7. Per the Water Use Efficiency 2002 PSP, a discount rate of 6% must be used.
8. BVCSD Annual Water Quality Report published March, 1997.
9. California Urban Water Conservation Council, (1996), Guidelines for Preparing Cost-Effectiveness Analyses, 4-10.