

Proposal for the

Industrial Process Water Use Reduction Program

by the

**Municipal Water District
of Orange County**

January 10, 2005

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I. Introduction

The reduction of process water use in industry through the traditional water conservation program has been of isolated success in California. In fact, few, if any, water conservation programs in California have been directed solely at process water use in industry¹. Furthermore, few water utility conservation programs have capitalized on the resources and funds of the sanitation districts serving their customers. The Municipal Water District of Orange County (MWDOC) is one of the exceptions, having successfully combined sanitation districts' funding with water utilities' funding to implement water conservation programs.

With this application, MWDOC proposes to fully capitalize upon its existing relationships with the sanitation districts serving Orange County with a program focused upon reducing process water and wastewater flows related to selected industry sectors in the County.

¹ Most programs that include an industrial component usually provide only industrial surveys and end up focusing on plumbing fixtures and other "easy retrofits" within the industrial plant. Funding for implementation of process improvements, if it exists, is usually provided by another (companion) program. A currently successful exception to this characterization is provided later in this application.

II. Executive Summary

Focus on Specific Industry Sectors

The Pacific Institute² (PI) offers the following definition of process water:

“Process water use includes any water uses unique to a particular industry for producing a product or service.”

PI further estimates that “process water use comprised approximately 18 percent (445,000 AF) of all CII use in 2000. Nearly all of this water use took place in the industrial sector...”

MWDOC, working with the Orange County Sanitation Districts (OCSD) and the South Orange County Wastewater Agency (SOCWA), has constructed a unique, cooperative program that will reduce the process water consumption and resultant wastewater flows.

Based upon actual recorded wastewater flows and permits in Orange County³, MWDOC determined that the following industry sectors offered the most promising opportunities for water efficiency improvements in industrial processes:

- Food processing
- Textiles
- Fabricated metals
- High-tech electronics

A more-detailed description of the water savings opportunities and a list of the 106 individual companies in Orange County to be “targeted” by this program are included in Section VII of this proposal.

The four targeted industrial sectors within the MWDOC service area currently generate 4,819 acre-feet per year of wastewater flows to the OCSD treatment plants. Refer to Appendix D for a listing of the companies generating those flows.

OCSD staff indicates that potential exists within these industries for process water efficiencies that could reduce water demands upon MWDOC and wastewater flows to OCSD facilities. Applying the savings potential estimates by the Pacific Institute to the targeted sectors yields water savings potential as follows:

Table 1. Industrial Process Water Savings Potential – MWDOC Service Area

Industrial Sector	Current Wastewater Discharges – AFY (see Appendix D)	Water Savings Potential	
		Percentage as estimated by PI	Annual savings potential (AFY)
Food Processing	853	26%	222
Textiles	2,114	40%	845
Fabricated Metals	471	33%	155
Electronics	1,381	43%	594
Total – Targeted Sectors	4,819		1,816

² Pacific Institute, 2003. *Waste Not, Want Not: The Potential for Urban Water Conservation in California*, November.

³ As detailed in data provided by the two wastewater agencies.

The 1,816 acre-feet of potential annual savings represents an aggressive target for the proposed program. Experience from other less-focused CII programs would confirm that this is an optimistic goal. The approach to this program, however, will differ from previous approaches. Commercial and industrial water survey and incentive programs are known to have low participation and poor customer support. As such, few sites actually follow through with the recommendations and implement the changes suggested.

Our Program Design Overcomes Traditional Barriers to Industrial Survey and Incentive Programs

Our target customer is the industrial customer utilizing process water. This customer does not usually have an efficiency specialist on staff. They have the desire to run their operation efficiently but not the knowledge to understand nor the capital to develop and implement the measures necessary. This program intends to provide some of the missing resources. Instead of offering customers traditional commercial-industrial water surveys and incentives, MWDOC will implement a more-focused, intensive program directed at specific industries and processes.

Traditional commercial-industrial survey and incentive programs fail because of:

- **Weak front-end marketing.** The customer lists are too general and the water agency does not have a strong enough relationship with the customer to gain their attention.

Instead, we will utilize the highly targeted and accurate customer lists of both the OCSD and SOCWA (included here as Appendix D). Staff of these sanitation districts, who have built close ties to our target customers, will team up with our staff on program marketing, survey development, and follow-up. The source control inspectors of the sanitation districts know the facility decision makers at each company and which companies have high retrofit potential.

- **Program design that is too generalized and not focused to specific industry sectors.** One size does not fit all in the industrial customer class.

By selecting four sectors with a high concentration in Orange County and a high water savings potential, we can offer a survey and retrofit package that makes sense for the customers' businesses. Our field engineers and the sanitation districts' source control inspectors will be industry-specific and thoroughly familiar with the customers' water-using manufacturing processes.

- **Overly broad-based surveys that are often not cost effective and direct customers to low volume retrofits.** Because traditional programs attempt to identify every opportunity for savings, the customer will pick through the report and likely select the easiest retrofits opportunities, such as toilets.

Our focus is to show the customer 1.) the value of the process change; 2.) how to make it happen; and 3) where incentive money exists. Our ultimate goals are to save process water and to teach the customer how to implement recommendations on their own as a standard business practice.

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- **Highly technical reports delivered to non-technical decision makers.** Business owners have limited time and interest in digging through a 20-page survey report filled with complex recommendations. Conservation budgets are quickly consumed and retrofit opportunities are lost if the focus is on producing a thick technical report.

Our survey reports will be prepared by specialists in the sectors and processes being surveyed. They will be clear and concise and will focus on water saving opportunities that have the highest potential of being implemented.

- **Program and report does not place a strong enough emphasis upon the financial payback of the recommendations and the customers' resources.** With an overwhelmingly technical survey report and little follow up, the customer loses focus on the financial picture.

Every element of the program will focus on and emphasize the financial benefits to the customer. The water agency staff, the engineer conducting the audit, the printed report, and the follow-up customer support team will all be equipped to address financial issues when delivering information to the customer. The customers' incentive package with program rebates will provide a strong financial motivation to complete the retrofit process.

- **No follow up after the survey report is delivered.** The customer intends to take the next step but the report simply gathers dust as day-to-day business needs takes priority.

Our program is designed to stay connected with the customer through each step of the audit/survey process and incorporate a post-audit follow-up phase. This includes periodic visits with and calls to the customer to ascertain their progress and offer assistance to overcome problems.

As a result of the design and execution flaws listed above, it is common for customers for customers to lose interest and, as a result, the program falls short of its savings goals.

The proposed MWDOC program will succeed because these flaws will be eliminated by:

- having a strong connection to the customer through the sanitation districts;
- delivering a concise audit/survey report to the customer that identifies process efficiency measures together with the financial impact of implementing those measures;
- providing a valuable incentive package (\$300 per acre foot of water saved); and
- maintaining a relationship with the customer each step of the way.

As such, we conservatively estimate that the proposed program will achieve retrofits of varying magnitudes at 50 of the 106 company sites and deliver 1,723 lifetime acre-feet of water savings (and reduced wastewater flows) to Orange County and California.

III. Statement of Work

A. Section One: Relevance and Importance

MWDOC

MWDOC is a signatory to the Memorandum of Understanding regarding 14 Best Management Practices (BMPs) for urban water conservation in California. Development of this MOU originated through early negotiations between stakeholders searching for a Bay/Delta water solution. Implementation of BMPs is a component of Orange County's Urban Water Management Plan including the incorporation of water savings into demand forecasting as a supply option. As a result, MWDOC is voluntarily committed to a good faith effort to implement all cost-effective BMPs as part of its intention to foster a Bay/Delta solution as a State Water Project water user.

As a regional wholesaler, MWDOC develops, obtains funding for, and implements BMP programs on behalf of its 29 retail member agencies throughout Orange County. Examples of existing or completed programs include Home Water Surveys, Showerhead Retrofits, Metering with commodity charges, Leak Detection and Repair, Large Landscape Audits and Retrofits, Residential Clothes Washer Rebates, Public Information, School Education, Business and Industry Plumbing Fixture Rebates, Providing wholesale agency assistance, Conservation Pricing, Conservation Coordinator work Groups and Training Advocating water waste prohibitions, and Residential Toilet Retrofits. MWDOC and the Irvine Ranch Water District have also pioneered the use of weather-based smart irrigation controllers to save water and reduce irrigation runoff.

BMP 9 – CII water conservation

BMP No. 9 targeting Commercial, Industrial and Institutional water conservation is perhaps one of the least implemented BMPs in the State. As a result, implementation knowledge is limited. The proposed project seeks to expand this limited knowledge base by targeting implementation of BMP No. 9: Industrial Water Conservation on a regional level, including the entire MWDOC service area. Knowledge gained through implementation of this project could benefit other agencies in the State to develop and implement programs of their own. This project could achieve a significant percentage of Orange County's water savings target for this BMP. Regional implementation will allow for greater economies of scale and a more consistent message to local industrial water users.

Proposed Industrial Process Program

As we reach ever increasing saturation rates for the "cookie cutter retrofits" such as toilets, showerheads and high efficiency clothes washers, it is essential that water utilities move on to other prime areas of opportunity. One such opportunity is with the industrial process customer.

Industrial process water use is one of the highest water use business sectors, comprising 18% of our state's water consumption (Pacific Institute), yet has an extremely high potential for water savings. Although the complexity of technical support and services may be far beyond the

conventional water conservation program, it will succeed if designed with customer focus and strong technical and customer support.

The proposed program yields multiple benefits, both locally and to the state. In addition to meaningful water savings, the program will deliver much needed relief in volumes of wastewater flows. Reduction in wastewater flows decreases the burden on the treatment plants and minimizes pollution along our coastal waters.

Since this program is designed to overcome traditional barriers that others have experienced in the past, it can become a viable model for other water agencies needing to address the industrial sector of their customer base. The team approach of program staff along with the Sanitation Districts' staffs will focus the marketing dollars to enlist the best opportunity customer. Tailoring the surveys to the specific industry sector will make the program more cost effective. The heavy focus on financial paybacks in the process will provide a persuasive incentive for the customer to retrofit. The strong customer follow up process (missing from most programs) will prompt customers to make the extra effort to complete the retrofit process.

B. Section Two: Technical/Scientific Merit, Feasibility

Many CII water-efficiency programs directed at the industrial sector are limited in their scope. Some provide only on-site audits while others have limited funding assistance and technical resources for follow-up and implementation of the audit recommendations. By reviewing the performance of past programs, we determined the direction and design of our program.

Historical Approaches to Industrial Audits/Surveys

Our program is designed around learning experiences gained from two major California programs implemented by two water agencies: Metropolitan Water District of Southern California (MWD) CII Survey Program (1991-1996) and Santa Clara Valley Water District (SCVWD) Commercial and Industrial Survey Program (2003-2004). We are folding the positive attributes of each into our program and designing new elements to overcome the negative performance issues.

Below is an overview of these two important historical programs.

Metropolitan Water District – 1991-1996

In 1997, Hagler Bailly Services evaluated the actual impact of the 902 CII water use surveys sponsored by the MWD and conducted during the 1991-1996 period⁴. The evaluation showed that 124 sites out of 157 industrial sites surveyed implemented some of the recommendations, many of which were only toilet replacements. Of the 157 industrial surveys, 56 recommended process water recycling measures, of which 20 were implemented (35 percent). This represented 1,207 acre-feet of lifetime savings.

⁴ Hagler Bailly Services, 1997. *Evaluation of the MWD CII Survey Database, prepared for the Metropolitan Water District of Southern California*, November 19.

It should be noted that incentives were not provided to the customer by the water utilities nor were technical and engineering specialists made available to the industrial firms to facilitate follow-up and implementation. Yet despite the minimal customer offerings, 35 percent of the firms found the resources necessary to implement the improvements.

Those industrial firms choosing not to implement the recommended process water recycling measures were surveyed by Hagler Bailly as to the reasons for their negative decisions. The survey results were as follows:

Financial	35%
Scheduling	5%
Availability/Labor	2%
Impractical	40%
No interest	13%
Report not read	5%

As a result, we have determined that it is crucial to our program's success that the two dominant reasons (financial and impractical) be fully addressed in the proposed Orange County program. Our program will include:

- **Incentives that motivate** the customer to retrofit
- A survey that includes **practical recommendations** in which the customer has expressed an interest.

Santa Clara Valley Water District – 2003-2004

More recently, the SCVWD completed a CII Water Use Survey Program, summarized in a comprehensive final report⁵. Within the industrial sector, a total of 12 firms were surveyed, of which three were in the sectors targeted for the proposed MWDOC program⁶. Of the 12 firms, eight (67 percent) are implementing changes in their industrial operations that reduce water use as a result of the survey work. No firm estimate yet exists as to the magnitude of the expected water savings.

When implementing its survey program, SCVWD adopted three extremely important elements for its program outreach to industrial customers. The district's program included the following positive elements:

- **Experienced consultants** with special technical expertise in process systems for the industrial portion of its CII survey program

⁵ Santa Clara Valley Water District, 2004. *Commercial, Institutional and Industrial Water Use Survey Program, Final Report*, by Pollution Prevention International, Inc., March 25.

⁶ Two firms were within the food processing sector (ConAgra Foods and Mohawk Packaging) and one firm was in the metals sector (SJ Valley Plating).

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- **Significant financial incentives**⁷ to those industrial firms implementing the recommended measures and demonstrating savings. These incentives are not, however, limited to the survey participants or the recommended measures.
 - **Extensive and focused follow-up** with its industrial customer participants to clearly communicate the benefits and incentives available to those firms implementing the recommended water-efficiency measures.

Because these elements are an integral part of SCVWD’s approach to its industrial base, they are experiencing unprecedented 67% retrofit rate among industrial firms in implementing water-efficiency measures and practices.

As a result, the proposed MWDOC program will similarly emphasize these design elements, thereby maximizing the likelihood of implementation of the recommended measures.

Through an evaluation of these previous programs, our industrial process water use reduction program was crafted with the following major components:

Key MWDOC Design Elements

- A specialized program focusing only on companies in the four high potential market sectors
- A highly targeted and accurate customer list from two sanitation districts in Orange County
- Significant sales and technical support from the sanitation districts’, organizations with close ties to our key customers.
- A marketing process that is designed to identify the optimum program participants; those with genuine interest and those with significant water savings opportunities, aided in large part by the source control inspectors of the sanitation districts.
- Program engineers and source control inspectors with industry-specific experience
- Surveys that are tailored and sized for each customer
- Reports that showcase the financial benefits of retrofitting
- Incentives that drive the customer to implement the required changes.
- A customer support backbone throughout the entire program to continually motivate the customer toward implementation of the recommended retrofits.

Industrial Customers

The quality of the customer list dictates the overall response rate to a program. MWDOC, working with the sanitation districts in the county, has the highest quality list available, the list of the largest wastewater discharge permittees in the county. This comprehensive list of 106 firms in four targeted sectors may be seen in Appendix D.. This relevant information will allow us to select customers with the highest opportunities for significant water savings.

⁷ SCVWD, under the terms of their WET program, offers \$4 per CCF (\$1,743 per AF) of water saved or 50 percent of the project cost, whichever is less.

Our prime industrial targets are companies that operate with high volume water processes. In the case of Orange County, these customers are predominantly within these sectors:

- Metal plating companies
- Textile manufacturers
- Food processors
- Electronic manufacturers

Most of the listed companies within these sectors are in need of technical support to identify and implement water-efficient processes. They typically do not retain a water-efficiency specialist on staff and are unlikely to retrofit without the aid of a program of type proposed by MWDOC. Further, most of the companies are locally-owned and, as such, less bureaucratic than larger organizations. Thus, they are able to make a retrofit decision and arrange for design and implementation more expeditiously.

Upon award of the grant, MWDOC will work with the sanitation districts and their source control inspectors to prioritize the list to identify the immediate candidates for surveys, i.e. those with the greatest need for source reduction and best potential for water savings.

Marketing

It is our belief that the best marketing is one-on-one with the customer. For our program, the primary vehicle for contact with the customer will be the source control inspectors of the sanitation districts in the county.

With the aid of the inspectors, we will filter out customers that 1) have already implemented process improvements optimizing their wastewater discharges, 2) are clearly not interested in the program, or 3) seem unlikely to or incapable of implementing any retrofit recommendations. (Further marketing of these customers would only drive up the cost of the program and not yield meaningful results.)

Interested customers will be scheduled for a site audit/survey as quickly as is feasible in order to maintain the maximum level of customer interest.

Survey Process

Our program will utilize only professional engineers and technical specialists with specific expertise in our four target sectors. These individuals will become fully acquainted with the customer's business and the most current technologies and best practices for this sector.

Expertise in water-efficient process improvements will be required for:

- Water Reduction
- Water Recycling
- Water Reuse
- And Water Replacement

With this background, the program engineer will be able to gain the confidence and respect of the customer beyond that of an individual with a more general level of knowledge. In all cases,

the assigned source control inspector from the sanitation district will accompany the program engineer on-site and provide an additional technical resource.

The survey (or audit) will focus on the process technologies yielding the best return for the customer and the program. We know that the retrofit will only occur if the customer supports the selected retrofit. For this reason, the program will include two levels of surveys: the Focused Survey and the Comprehensive Survey.

Focused Survey

The Focused Survey will be the first step in the process and will include a limited number of measures, those most likely to be implemented by the customer. The engineer will determine which measure or measures to include, balancing between the customer's interest - measures upon which the customer has indicated a willing to focus - and those measures that are known to save the most water.

The Focused Survey may include only one building on the premises or only one major water-using process; depending upon the customer and the site. The engineer would provide whatever is necessary to clearly illustrate their recommendation(s). The overall goal of the Focused Survey is to give this customer a template showing them how to secure water agency incentives, how to retrofit, and how to incorporate water efficiency into their everyday business.

Comprehensive Survey

The more expensive Comprehensive Survey would follow a Focused Survey and will be provided for those customers expressing a strong interest in pursuing one or more specific process improvement representing significant water savings. The engineer will spend up to three days on-site measuring flows to determine equipment design ranges; identifying water recycling and reuse possibilities as well as equipment retrofits that would result in reduced water usage and wastewater discharges. The engineer would diagram system modifications including *before* and *after* water balance, take supporting photos, and detail a thorough list of measures for the process.

We anticipate that of the total of 106 targeted companies, 48 to 50 will receive a Focused Survey. Of those, 12 will go on to receive a full Comprehensive Survey.

Customer Report

The water conservation industry has yet to vanquish a major design weakness relating to survey programs for commercial and industrial customers. The typical survey reports, with all their technical detail, say little to the customer on how the retrofits or upgrades can benefit their business. The report is often stuffed with technical terminology yet fails to roll up the recommendations for the customer in a summary impact page. As importantly, there is usually no practical next step information to aid the customer in implementing the recommendations.

It is critical that the proposed MWDOC program overcome these design flaws. We will completely overhaul the structure and the look of the typical (but less-than-effective) survey reports. Our reports for both the Focused Surveys and the Comprehensive Surveys will be

reader-friendly – through the use of organization and layout, the report will be informative and useful with:

- A **cover letter** that defines the report sections
- A **summary page** listing all recommended retrofits, upgrades, and changes to operating practices with cost, savings, and payback information.
- A **Water Use and Wastewater Discharge Summary page** that graphically illustrates:
 - How the customer uses water through a water balance chart, pre- and post-retrofit
 - Last 12 months of usage graphed month-by-month
 - What their usage would be if they conducted the retrofit, month-by-month
- Report detail will be **highly customized** to the customer’s specific sector, process and site. Each recommendation will be detailed and include photos and pre- and post-diagrams.
- Include a **“Next Steps” page** that provides the customer with a road map on how to implement the recommended process improvements
- A calculated estimate of the potential range of **grant funding** that could be provided as an incentive to implement the project.
- A **Reference Page** with contact information for MWDOC, the sanitation district source control inspector, Survey Staff and MWD

Report Delivery

An appointment will be made with the company’s decision maker(s) to deliver the survey report. This is required to fully explain the report and motivate the customer to move forward with the retrofit and other recommendations. The engineer will walk the customer through each section of the report and take the time to respond to questions and detail the technical aspects of the process improvements.

The key element of the meeting with the customer is the overall monetary benefit that will be realized should the company implement the recommendations. The engineer will stress the value of program participation; identify the incentives available and the support resources available to help make the recommendations a reality.

The recommendations, incentives and paybacks are explained to the customer. The program engineer will then discuss with the customer how to best begin the process of implementing the efficiency improvement recommendations. The engineer must be a careful listener and clearly comprehend the customer’s day-to-day issues that might delay or cause the customer to discard the implementation of the recommendations. The engineer will need to help solve problems and eliminate barriers.

Application Submittal and Processing

Since many business owners and managers are bogged down with day-to-day business concerns, MWDOC program staff (working with and through the sanitation districts’ source control inspectors) will aid the customer in completing the application and retrofit package required to obtain approval for program participation and incentives. The customer will receive a basic customer information application, requesting general information on account numbers; contact names and a general statement of work.

Next, program staff will work with the customer and help prepare their submittal. The submittal package for those companies requesting and receiving a Comprehensive Survey will include:

- Comprehensive Survey report performed by program engineer
- A process schematic with meter locations shown,
- Complete description of the proposed project
- Cost estimate for the proposed process improvements
- Water and wastewater discharge savings estimates

The MWDOC application and program requirements will mirror the requirements of the MWD Industrial Process Improvement Program, since funding from that program will be an integral part.

MWDOC program staff will review the application submittal to determine if:

- The process change is recommended by the program engineer
- The process design is technically feasible
- The estimated cost to complete the project is reasonable
- The water savings estimates are based upon industry accepted methodologies and are correctly calculated
- The customer commits to post- installation metering and inspections

As noted in Section III.C, Monitoring and Assessment, water savings will be verified through monitoring and metering of the process for a period of at least one year following its start-up.

Customer Support through Retrofit Process

Traditional programs have failed to support the customer once the survey is delivered. MWDOC clearly recognizes that the survey is only the first step in the process and the real work is in aiding and motivating the customer to take each step required in order to complete the efficiency improvements at their site. Once the survey is delivered, a technically trained and highly qualified program representative will maintain contact with the customer on a weekly basis. If the customer has not yet proceeded with implementation, the representative will offer to aid the customer. This may mean that extensive “hand-holding” by the representative is necessary to assist the customer through the implementation process.

Should the process stall during this follow-up period, despite the program representative’s helping hand, the engineer will contact the customer and offer to meet on-site to provide solutions, facilitate contact with the vendors and answer questions regarding the efficiency recommendations. The engineer will again stress the financial benefit of the retrofits to help refocus the customer and provide motivation to continue the process.

Incentive Payments

One integral element of this program that is designed to encourage implementation is the financial incentive available for the process improvement project. Using the framework

developed by MWD for its Industrial Process Improvement (IPI) Program, this MWDOC program will follow the same guidelines (Refer to Appendix E for IPI Program Guidelines). Incentive payments to the company successfully implementing a long-term (minimum 5 years) process improvement will amount to \$280 per acre-foot of water saved over a five-year period.

MWD guidelines specifically provide as follows:

Based on project cost and water savings, Metropolitan will pay the **lesser of**:

- \$2.36 per 1,000 gallons of actual water saved for a one (1) year monitoring period (equivalent to \$154 per acre-foot for five (5) years; or
- Fifty (50) percent of the project's water-related process improvement costs; or
- Buy down of project cost to reduce the simple pay-back period to two (2) years (project cost minus twice the estimated annual water and wastewater savings).

The MWDOC program would supplement MWD's \$154 per acre-foot with another \$126 per acre-foot to offer the full \$280. The MWDOC program would encompass the rules of the MWD program related to measurement and verification of savings as well. See Section III.C., Monitoring and Assessment for a description of the methodology related to monitoring of water savings.

Quality Assurance

MWDOC management ardently guards the customer relationships of its member water agencies by maintaining strong quality controls within each of its program. Our processes have been designed to ensure that high quality services are delivered by each and every employee and contractor and that security and confidentiality is maintained. To ensure the highest levels of integrity in program operations and incentive processing, MWDOC maintains control and focus across all stages of operation. We monitor each Program procedure, from initial customer contact through check generation. To ensure that the program is operating with the maximum integrity, a quality control audit is performed on 100% of all completed payments.

Task List and Schedule

Adept at operating programs on schedule and on goal, MWDOC will implement the program according to the task and timeline shown below.

The months of December 2005, January 2006 and February 2006 will be dedicated to preparing for program start-up activities, including finalizing of the program process details, retaining consultant engineers for the technical activities, working with the sanitation districts to refine the list of candidate companies, development of marketing materials, and final determination on survey and data fields.

Customer marketing and outreach will be kicked off in January 2006 and will continue until the program goals are reached. Surveys will begin as early as April 2006 and the first reports are expected to be delivered to customers by the second half of April. The customer support and follow-up process will begin in May and continue until goals are met. Customer process retrofit projects will begin as early as May 2006 and continue through the third quarter of 2008. The program will conclude on December 31, 2008, and a final report will be delivered in January of 2009.

Below are the specific tasks and calendar year milestones for the proposed program:

	2006				2007				2008			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Contact with target list of companies	-	Begin contact with 106 companies	Continue contact with 106 companies	Recontact with 100 companies	Recontact companies as necessary							
Perform Focused Surveys (50)		6	12	12	10	10						
Perform Comprehensive Surveys (12)		1	3	3	3	2						
Survey follow-up			On 6 completed surveys	On 21 completed surveys	On 36 completed surveys	On 46 completed surveys	On 52 completed surveys	On 43 completed surveys	On 33 completed surveys	On 23 completed surveys		
Application processing					3	6	10	10	10	11		
Project monitoring						3	6	7	8	10	12	3
Incentive payments								5	10	11	12	12

Production Plan and Tasks

In order to reach our customer contact and water savings goals, we must meticulously track each step of the program to ensure that performance is on target. The five major program tasks of the process are:

- The program organization and telephone solicitation process,
- On-site completion of the Focused Surveys
- On-site completion of the Comprehensive Surveys
- Customer follow-up by Program Representative or Program Engineer
- Customer process retrofit completion and Incentive Payments

The costs of each of the five tasks is shown in Table 2. Further detail on program costs is shown in Appendix C and Appendix F.

Table 2. Program cost breakdown

Task	Labor Cost	Incentive	TOTAL
1. Program organization, administration, and telephone solicitation	\$203,412		\$203,412
2. On-site completion of Focused Surveys (50)	\$80,136		\$80,136
3. On-site completion of Comprehensive Surveys (12)	\$57,240		\$57,240
4. Customer follow-up by Program representatives, including monitoring and assessment	\$133,633		\$133,633
5. Customer process retrofit		\$344,589	\$344,589
TOTAL	\$474,420	\$344,589	\$819,009

Following is a more detailed production task list that will be used to keep the program team operating on schedule. Actual production will be compared to this production planner and activity levels will be adjusted to keep the program on target.

Table 3. Program production task list

Task	Completion Date
Finalize the engineering and marketing consultant scopes of work	December 2005
Recruit and retain consultants	January 2006
Coordinate with sanitation district technical specialists to refine and prioritize list of candidate manufacturing companies	January – February 2006
Determine standardized information required for each survey	February 2006
Define survey data fields	February 2006
Define reporting components	February 2006
Draft survey processes and components	February 2006
Draft customer script and priority contact list (in conjunction with sanitation districts' source control inspectors)	February 2006
Contact customer companies, arrange and schedule surveys	March 2006 & ongoing
Generate program database and begin to populate	March 2006
Conduct Focused Surveys	April 2006 & ongoing
Conduct Comprehensive Surveys	May 2006 & ongoing
Deliver survey reports to customer companies	April 2006 & ongoing
Follow-up with customers receiving surveys, support process improvement and incentive applications	May 2006 & ongoing
Modify marketing strategy, scripts, and materials as necessary based upon feedback from first round of contacts with customers	June 2006 & ongoing
Draft and submit monthly/quarterly invoices and reports to funding partners and agencies	March 2006 & ongoing
Draft and submit annual Program report to funding partners and agencies	January 2007 & January 2008
Draft and submit Final Program report to funding partners and agencies	February 2009

Note: Above schedule dates assume and are dependent upon a January 1, 2006 funding commitment

Environmental Documentation

A “project” as defined by CEQA, California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15378 is: "... the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment...."

As such, this program does not meet the requirements of the “project” definition and is therefore not subject to CEQA.

C. Section Three: Monitoring and Assessment

Monitoring of the proposed program is critical to maintaining the integrity and longevity of the water savings to be achieved. This program does not rely upon one-for-one equipment replacements (such as toilet fixtures, cooling tower controllers, or x-ray machine recirculating systems, where unit savings have already been established), instead encouraging and incenting customers to implement engineered process changes in their production operations. As such, nearly every change will be unique and will require some form of measurement and verification.

MWD's Industrial Process Improvement (IPI) program requires that water meters be installed to validate and forecast savings from process changes that are subsidized by the program. Because the MWD funding (at \$154 per acre-foot) is integral to this program⁸, the rules of the IPI program will apply to this MWDOC program. As noted in Appendix E, payment to a customer would be subject to one full year of monitoring of process water savings (the "after" condition) once the process change has been determined to be fully operational. In most cases, a "before" condition would also be measured, depending upon the process operation and the metering that may already be in place. Water meter locations would be selected by MWDOC program personnel, working in conjunction with MWD staff⁹. Water meters would then be periodically read by MWDOC program personnel, data would be collected and analyzed, and actual water savings computed. All of the analyses would be conducted by program technical personnel in conjunction with MWD staff and a savings assessment developed.

Except in the most unique or unusual situations, monitoring with water meters would conclude one year after official "start-up" of the new process had been declared by the customer. The official final report and savings assessment would be provided to the customer, MWDOC management, its affected member water agency, MWD, the appropriate sanitation district, and the Department of Water Resources. In addition to savings, this final report and assessment will include a:

- Complete description of the project (with company proprietary information withheld),
- A process schematic with meter locations shown,
- Description of the methodology for obtaining the needed data and defining water savings and wastewater flow reductions,
- Description of technologies employed that might be applicable to other companies in the same industrial sector,
- Description of problems encountered in design and implementation,
- Itemization of project costs and incentive payments, and
- Other information unique to the project.

⁸ The MWD funding of \$154 per acre foot of savings will be combined with another \$126 per acre foot from this program to provide a total of \$280 per acre-foot to customers implementing process improvements under this program. That incentive payment is computed on the basis of five years of savings. Other restrictions apply, some of which are documented in Appendix E.

⁹ In most cases, the sanitation district's source control inspector would also be consulted as to meter locations, in order to provide that agency with valuable wastewater information as well.

The cost of the Monitoring and Assessment and Reporting elements of the program is estimated at \$57,240, of which half is designated for Monitoring and Assessment (\$28,620).

IV. Qualifications of the Applicant and Cooperators

MWDOC

The Municipal Water District of Orange County has long operated water efficiency programs for its customers including residential, commercial and industrial offerings. A list of our major programs is shown below:

- ULFT Rebate Program
- Residential Landscape Seminars
- Professional Landscape Classes
- Landscape Certification Program
- Residential HEW Program
- The SmarTimer Program for Residential & Commercial
- CII Customer Rebate Program (prescriptive measures)

Leading the MWDOC water efficiency organization is industry veteran, Mr. Joe Berg. Mr. Berg has held the position of Water Efficiency Manager for MWDOC since 1998. Carrying management responsibility for the complete portfolio of water efficiency programs listed above, he clearly demonstrates the required abilities to oversee MWDOC's proposed industrial program. His diverse program background is grounded in program design as well as all aspects of implementation. Mr. Berg will handle all invoicing, reports and communication with DWR.

Mr. Steve Hedges will act as MWDOC's program supervisor for the proposed program, handling the day to day operations of the project. Mr. Hedges possesses over 10 years of experience in water-efficiency programs at MWDOC, managing the daily activities of numerous programs including audit programs, toilet replacement programs, and training and education programs.

Resumes of the Mr. Joe Berg and Mr. Steve Hedges may be found in Appendix G.

Orange County Sanitation Districts (OCSD)

Acting as a program cooperator, OCSD will provide many benefits to the program.

The OCSD is a public agency that is successful by working as a team and by leveraging their efforts with other public agencies. The OCSD is committed to protect public health and the environment by developing, integrating, and implementing fiscally responsible solutions to wastewater, water reclamation and watershed protection issues.

For this program, OCSD will provide the following services to MWDOC's program:

1. The targeted permittee list with detail on manufacturing processes and wastewater flow volume (see Appendix D).
2. Program technical resources to support marketing and on-site visits, including source control inspectors as the intermediary between the program and the customer as well as providing the technical and operational knowledge of each of the 106 candidate companies.

V. Outreach, Community Involvement, and Acceptance

The design of this program does not provide for direct participation by community groups but does provide aid through a number of other means.

The program will provide direct outreach to the business community including businesses that may be minority- or women-owned. As a small to mid-size manufacturing business, many are being hit hard economically and are electing to leave California. By providing a more positive cash flow through reduction of water and wastewater charges, we are aiding these companies and creating a favorable business environment. This, in turn, will bring economic benefits to the local community as well as to the state. Representing the business community supporting the program is the Orange County Business Council.

Additionally, by strengthening the financial balance sheet of these businesses, we are indirectly boosting job stability for the workers employed at these manufacturing facilities. Many of the employees are at the lower end of the wage scale and need a financially stable employer to earn their living and make ends meet for their households.

The retrofit vendors will receive the benefit of increased sales as a result of the program. It is our hope that this program will act as the catalyst and prompt a customer mindset of water efficiency, leading to future process improvements and future vendor sales down the road that will further spur the economy.

Furthermore, local environmental groups, such as Coast Keeper and Surfrider, support the proposal for its dedication to reducing water demand, resulting wastewater flows, and potential contamination of Orange County beaches.

Program support letters are included herein as Appendix H.

VI. Innovation

The innovative aspect of this program is MWDOC's ability to penetrate the industrial sector with water efficiency opportunities that clearly benefit the participating companies in the four target sectors. History shows that the water industry has long desired to impact the industrial sector with state-of-the-art technology improvements, but with minimal success.

Probably the most significant and innovative strategy to be utilized in this program is the partnering with the local sanitation districts (OCSD and SOCWA) to pursue mutually beneficial process improvements in local manufacturing. This strategy brings to bear on this program the very specialized expertise of the source control inspectors of the sanitation districts, who are familiar with the industrial processes used within all of the companies listed in Appendix D. These individual specialists bring both technical knowledge and familiarity with the engineers and managers of these companies. By working together in partnership, the business community and the environment experience a "double-benefit", reducing water consumption and wastewater discharges.

The industrial market is estimated to have a savings opportunity of more than 25 percent of current demand volume, yet, in the past, agencies have always had difficulty gaining customer participation and follow through. Because of the partnerships with the sanitation districts, our program is expected to deliver a 47 percent participation rate with water demand reductions averaging five (5) acre-feet per year per site (50 sites), a savings rate that would serve as a model for other water agencies.

Most industrial survey programs require that the customer take full initiative to pursue the audit and coordinate the retrofits. The proposed MWDOC program breaks tradition with these programs by providing a strong customer support backbone throughout the program. One of the major goals of the program is to aid the customer and gently push the customer from the audit through completion of the retrofit, providing significant financial incentives along the way.

It is our strong belief that the industrial process market can be penetrated with partnerships, the correct program design, and customer support. We respectfully request the opportunity to lead the industry in this very important initiative.

VII. Costs and Benefits

A. Industry Focus and Water Savings Potential

Selected Industry Sectors

MWDOC, working with the County Sanitation Districts of Orange County (OCSD) and the South Orange County Wastewater Agency (SOCWA), has constructed a unique, cooperative program that will reduce the process water consumption and resultant wastewater flows.

Based upon actual recorded wastewater flows and permits in Orange County¹⁰, MWDOC determined that the following four industry sectors were the most dominant in the county and offered the most promising opportunities for water efficiency improvements in industrial processes:

- Food processing
- Textiles
- Fabricated metals
- High-tech electronics

Further analysis by the Pacific Institute¹¹ of the four targeted sectors concluded the following:

Food Processing (SIC 20)

PI focused on four categories within Food Processing: meat processing (SIC 201), dairy products (SIC 202), preserved fruits and vegetables (SIC 203), and beverages (SIC 208). Within Orange County's food processing industry, the latter three dominate. Therefore the following data on potential water savings focuses on those three sub-sectors:

Table 4. Potential process water savings – Food Processing Industry

Sub-sector	Conservation Measures	Water Savings Potential
Dairy products	Recirculation of carton cleaning water, recycle dilute rinses, reverse osmosis systems,	25%
Preserved fruits and vegetables	Reuse of cooling and rinse water, recycling of steam condensate, sanitizing reconditioned water for contact use, self-closing nozzles	25%
Beverages*	Reuse of cooling and rinse water, sanitize reconditioned water for contact use, self-closing nozzles	27%
Total Food Processing – Process Water		26%

Sources: Pacific Institute, Appendix F, Tables F-7, F-13, and F-17

*-process water use only; consumptive use of water is excluded

¹⁰ As detailed in data provided by the two wastewater agencies.

¹¹ Pacific Institute, 2003. *Waste Not, Want Not: The Potential for Urban Water Conservation in California*, November.

Textile Industry (SIC 22)

Within the textile industry, 90 percent of water is used for processes (Appendix F, p16). Those processes and the potential water savings are as follows:

Table 5. Potential process water savings – Textile Industry

Textile Process	Conservation Measure	Portion of Process Use	Water Savings Potential
Preparation	Reuse of scouring, bleach and mercerizing water	15%	33%
Dyeing	Reuse of rinse water from dyeing for dye bath make-up; use of reclaimed water in carpet dyeing; avoiding bath overflow	52%	56%
Printing		6%	10%
Washing	Counter current washing; spray rinsing	27%	18%
Total Textiles – Process Water		100%	40%

Source: Pacific Institute, Appendix F, Table F-22

Fabricated Metals (SIC 34)

This sector covers machining, cleaning, treating, coating, and painting metal parts. Water is used primarily for rinsing components after the various chemical processes and in preparing chemical baths. (Appendix F, p23)

PI reports that: “Southern California supports the largest Fabricated Metals industry in the United States due to the region’s aircraft and electronics industries.” This fact is clearly evident by the large number of firms in Orange County that are classified in this sector.

According to PI, within the typical fabricated metals company, an estimated 67 percent of water use is for processes and 15 percent is used for cooling.

Table 6. Potential process water savings – Fabricated Metals Industry

Conservation Measure	Savings potential
Counter current rinsing	50-60%
Spray rinses	60%
Reactive or cascade rinses	50%
Conductivity controllers	40%
Timer rinse controls	40%
Acid recovery systems	50%
Total Fabricated Metals – Process Water	33%

Source: Pacific Institute, Appendix F, Table F-28

High-tech Electronics (SICs 357, 36 and 38)

This sector includes printed circuit board manufacturing and assembly, semiconductor manufacturing, computer and office equipment manufacturing, and instrument manufacturing. Process water use is comprised primarily of rinsing, tool cleaning, scrubbing. (Pacific Institute, Appendix F, p26)

PI has estimated water savings potential as follows:

Table 7. Potential process water savings – High-Tech Electronics Industry

Process	Conservation Measure	Portion of Process Use	Water Savings Potential
Rinsing	Rinse optimization, reuse of rinse effluent, modify rinse tools, cascade rinsing, spray rinses	80%	5-50%
Scrubbers	Reuse rinse effluent in wet scrubbers	10%	5%
Ultra Purified Water Production	Improve efficiency of production unit	10%	10%
Total Textiles – Process Water		100%	43%

Source: Pacific Institute, Appendix F, Table F-32

County Sanitation Agencies

The Orange County Sanitation District (OCSD) comprises nine sanitation districts located within the boundaries of Orange County and within the service area of MWDOC. These districts cover over 450 square miles and encompass 23 cities in the north part of the county. Each city and sewer district operates their own collection system, and each discharges into OCSD’s trunk collection and conveyance system. From there, the waste is transported to one of two treatment plants.

The South Orange County Wastewater Agency (SOCWA) provides similar treatment services in the south portion of the county.

Reducing or limiting wastewater discharges into local collection systems is a critical need of the both sanitation agencies. As such, the OCSD already participates with MWDOC in its water conservation programs by providing funding support that underwrites some of MWDOC’s program costs. Within the industrial sector, significant discharges by firms within the four targeted sectors represent opportunities for further efficiencies.

Together, the four targeted sectors represent 65 percent of all wastewater discharges by industrial firms and other organizations on OCSD’s and SOCWA’s industrial permittee list¹². Appendix D lists the companies within the four targeted industrial sectors (and within the MWDOC service area) and the currently permitted discharges to the collections system that feeds the OCSD and SOCWA treatment plants.

Overall Water Savings Potential in MWDOC Service Area-4 Targeted Sectors

As stated earlier, the four targeted industrial sectors within the MWDOC service area currently generate 4,819 acre-feet per year of wastewater flows to the OCSD treatment plants. Refer to

¹² OCSD’s permittee list consists of 397 permits, of which 206 are organizations within the service area of MWDOC. Of the 206 organizations, 101 are industrial firms within the four targeted sectors (another 5 are on the SOCWA’s list). It should be noted that while MWDOC serves the majority of Orange County, the Orange County cities of Santa Ana, Fullerton, and Anaheim are not within the MWDOC service area. A portion of the wastewater discharges to the CSDOC system (from the 193 organizations not included above) are from those three cities and, as such, are not included in Table ZZ.

Appendix D for a listing of the companies generating those flows. Applying the savings potential estimates by the Pacific Institute to the targeted sectors yields water savings potential estimated at 1,816 acre-feet per year (Refer to Table 1 in Section II).

The 1,816 acre-feet of potential annual savings represents an aggressive target for the proposed program. Experience from other less-focused CII programs would confirm that this is an optimistic goal. The approach to the MWDOC program, however, will differ from previous approaches by other water utilities. Refer to Section III for details.

MWDOC’s Approach and Expected Water Savings

MWDOC’s approach will be patterned largely after the successful program of the SCVWD, incorporating the key elements listed above, but focused on the four target sectors. Furthermore, the targeting of specific sectors and firms within those sectors through the OCS and SOCWA field staffs¹³ will avoid the early problems with the MWD program and enable the proposed MWDOC program to gain access to all of the targeted firms.

A more complete description of the outreach approach, two-tiered survey methods, specialization of the consultant team, and follow-up procedure can be found in Section III of this proposal.

Forecasted water savings for MWDOC’s proposed *Industrial Process Water Use Reduction Program* are based upon the water savings potential within the four targeted industrial sectors and the expected “capture” percentages for surveys and implementation. Table 8 summarizes that assessment. Full detail on the estimate of savings is found in Appendix F.

Table 8. Water Savings “Capture” – Proposed MWDOC Industrial Program

Targeted industrial sector	No. of candidate firms the in sector	Water savings potential (AFY)	No. of survey visits*	Water savings potential identified in the surveys (AFY)	Water savings actually captured**	
					AFY	Life-time***
Food Processing	17	222	7	100	12	86
Textiles	8	845	6	586	193	1354
Fabricated Metals	39	155	18	70	6	44
Electronics	42	594	19	267	34	239
Total – Targeted Sectors	106	1,816	50	1,023	246	1,723

*-Conservatively estimated at 47 percent of candidate firms, although successful survey appointments and visits actually experienced in the MWD program of 1991-1996 were 95 percent

**-Although the SCVWD is achieving a 67 percent implementation rate with extensive follow-up, the projected realization of savings for this proposed program is based upon the more conservative estimate of 24 percent, which is less than the actual implementation achieved on MWD’s 1991-1996 program that had no follow-up with customers.

***-Lifetime savings based upon 7-year life.

¹³ The field staff of source control inspectors will be an integral part of the contact, process assessment, and follow-up elements of the proposed program. These individuals have a first-hand, day-to-day knowledge of the processes within the companies they service.

B. Benefits

The primary benefits of the project are water demand reductions by the targeted industries as follows:

Table 9. Realized Water Savings by Industrial Sector

TOTAL AF SAVINGS ACTUALLY RESULTING FROM FOCUSED SURVEYS AND COMPEHENSIVE SURVEYS AND IMPLEMENTATION OF THEIR RECOMMENDATIONS		
Total AF (7 yrs)	Annual AF	Sector
86	12.3	Food Processing
1354	193.4	Textiles
44	6.3	Fabricated Metals
239	34.1	Electronics
1723	246.1	All sectors

Approximately 34 percent of MWDOC's water is drawn from the State Water Project sources, the balance coming from the Colorado River and groundwater. The blended avoided cost of this water is \$312.81 per acre foot. The total value, then, of the water saved is \$538,972, or \$77,000 annually.

Water savings targeted through implementation of this program are projected at 1,723 acre-feet¹⁴. A range of 10 to 40 percent of this saved water originates from the State Water Project, depending on both the annual and seasonal mix of imported water delivered into the region. The remaining saved water originates from the Colorado River and local groundwater.

The majority of saved water will translate into reduced wastewater flows into the Orange County sanitation districts' treatment systems. The majority of the sanitation districts' wastewater flows are treated and discharged into the Pacific Ocean while approximately 7,500 acre feet are treated to reclaimed water standards and reused locally for irrigation purposes. By 2007, an additional 72,000 acre feet will be diverted before ocean discharge and treated for groundwater recharge purposes. The proposed project will contribute to this reclaimed water total.

With the Orange County Sanitation District as a project partner, industrial process water use efficiency measures implemented will likely improve discharge water quality for participating industries thereby improving the quality of water discharged into the wastewater collection and treatment system and improving source water for both reclaimed and groundwater recharge projects.

C. Costs

The costs of the proposed program are detailed in Section III.C, and in Appendices C and F.

¹⁴ Some savings may accrue from the concurrent replacement of plumbing fixtures within the targeted companies.

APPENDIX A: Project Information Form 2004 Water Use Efficiency Proposal Solicitation Package

Applying for:

Urban

Agricultural

1. (Section A) **Urban or Agricultural Water Use Efficiency Implementation Project**

- (a) Implementation of Urban Best Management Practice #9 – Industrial Program
- (b) implementation of Agricultural Efficient Water Management Practice, # _____
- (c) implementation of other projects to meet California Bay-Delta Program objectives, Targeted Benefit # or Quantifiable Objective #, if applicable

(d) Specify other: _____

2. (Section B) **Urban or Agricultural Research and Development; Feasibility Studies, Pilot, or Demonstration Projects; Training, Education or Public Information; Technical Assistance**

- (e) research and development, feasibility studies, pilot, or demonstration projects
- (f) training, education or public information programs with statewide application
- (g) technical assistance
- (h) other

3. Principal applicant (Organization or affiliation):

Municipal Water District of Orange County (MWDOC)

4. Project Title:

Industrial Process Water Use Reduction Program

5. Person authorized to sign and submit proposal and contract:

Name, title **Kevin P. Hunt, General Manager**

Mailing address **P. O. Box 20895**

Fountain Valley, CA 92728

Telephone **(714) 593-5026**

Fax. **714-964-9389**

E-mail **khunt@mwdoc.com**

6. Contact person (if different):	Name, title.	Mr. Joseph Berg
	Mailing address.	P. O. Box 20895
		Fountain Valley, CA 92728
	Telephone	714-593-5008
	Fax.	714-964-9389
	E-mail	jberg@mwdoc.com

7. Grant funds requested (dollar amount): **\$404,801**
(from Table C-1, column VI)

8. Applicant funds pledged (dollar amount): **\$414,208**

9. Total project costs (dollar amount): **\$819,009**
(from Table C-1, column IV, row n)

10. Percent of State share requested (%): **49.4%**
(from Table C-1)

11. Percent of local share as match (%): **50.6%**
(from Table C-1)

12. Is your project locally cost effective?
Locally cost effective means that the benefits to an entity (in dollar terms) of implementing a program exceed the costs of that program within the boundaries of that entity.
(If yes, provide information that the project in addition to Bay-Delta benefit meets one of the following conditions: broad transferable benefits, overcome implementation barriers, or accelerate implementation.)

(a) yes
 (b) no

11. Is your project required by regulation, law or contract?
 If no, your project is eligible.
 If yes, your project may be eligible only if there will be accelerated implementation to fulfill a future requirement and is not currently required.
Provide a description of the regulation, law or contract and an explanation of why the project is not currently required.

(a) yes
 (b) no

12. Duration of project (month/year to month/year): January 1, 2006 through December 31, 2008

13. State Assembly District where the project is to be conducted: **56, 60, 67, 68, 69, 70, 71, 72 and 73**
14. State Senate District where the project is to be conducted: **29, 33, 34, 35 and 38**
15. Congressional district(s) where the project is to be conducted: **40, 42, 44, 46, 47 and 48**
16. County where the project is to be conducted: **Orange County**
17. Location of project (longitude and latitude) **Longitude 117° 50' W
Latitude 33° 45' N**
18. How many service connections in your service area (urban)? **590,706**
19. How many acre-feet of water per year does your agency serve? **312,642 Imported**
20. Type of applicant (select one):
- (a) City
 - (b) County
 - (c) City and County
 - (d) Joint Powers Authority
 - (e) Public Water District
 - (f) Tribe
 - (g) Non Profit Organization
 - (h) University, College
 - (i) State Agency
 - (j) Federal Agency
 - (k) Other
 - (i) Investor-Owned Utility
 - (ii) Incorporated Mutual Water Co.
 - (iii) Specify _____
21. Is applicant a disadvantaged community? If 'yes' include annual median household income.
(Provide supporting documentation.)
- (a) yes, _____ median household income
 - (b) no

APPENDIX B: Signature Page

2004 Water Use Efficiency Proposal Solicitation Package

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form has the legal authority to submit the proposal on behalf of the applicant;

There is no pending litigation that may impact the financial condition of the applicant or its ability to complete the proposed project;

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;

The applicant will comply with all terms and conditions identified in this PSP if selected for funding; and

The applicant has legal authority to enter into a contract with the State.

Signature

Name and title

1/10/2005
Date

2004 Water Use Efficiency Proposal Solicitation Package

APPENDIX C: Project Costs and Benefits Tables

Table C- 1: Project Implementation Costs (Budget)

Table C- 2: Annual Operations and Maintenance Costs

Table C- 3: Total Annual Project Costs

Table C-4: Capital Recovery Factor

Table C- 5: Project Annual Physical Benefits (Quantitative and Qualitative Description of Benefits)

Table C- 6: Project Annual Local Monetary Benefits

Table C- 7: Project Local Monetary Benefits and Project Costs

Table C- 8: Applicant's Cost Share and Description

Appendix D

Discharge Permittees – by Industrial Sector

Food Processing Sector - Permittees	City	Product/Process	AFY of discharge
HOUSE FOODS AMERICA CORPORATION	GARDEN GROVE	Soybean Processing	223.4
MARUCHAN INC.	IRVINE	Dry Pasta Manufacturing	91.7
AMERIPEC INC.	BUENA PARK	Soft Drink Manufacturing	79.8
SEVEN-UP BOTTLING COMPANY	BUENA PARK		71.0
DEAN FOODS CO. OF CA. INC. (MILK PLANT)	BUENA PARK	Fluid Milk Manufacturing	70.2
KNOTT'S BERRY FARM FOODS	PLACENTIA	Fruit and Vegetable Canning	55.8
PEPSI-COLA BOTTLING GROUP	BUENA PARK	Soft Drink Manufacturing	51.9
UNION FOODS INC.	IRVINE	Dry Pasta Manufacturing	37.5
CLEUGH'S FROZEN FOODS, INC.	BUENA PARK	Frozen Fruit, Juice, and Vegetable Manufacturing	33.5
MARUCHAN, INC.	IRVINE	Dry Pasta Manufacturing	32.7
FROZSUN FOODS, INC.	PLACENTIA	Frozen Foods	30.3
DEAN FOODS CO. OF CA. INC.	BUENA PARK	Ice Cream Manufacturing	28.7
TODDS A DIVISION OF HJ HEINZ CO., L.P.	IRVINE	Dry, Condensed, & Evaporated Dairy Product Mfg.	19.1
RALPHS GROCERY COMPANY (BAKERY)	LA HABRA	Commercial Bakeries	9.6
PICK UP STIX COMMISSARIES	SAN CLEMENTE	Food Preparation and Processing – Meat & Vegetables	6.9
VILLA PARK ORCHARDS ASSOCIATION	ORANGE	Citrus Processing	5.6
FLAVORCHEM	SAN CLEMENTE	Food Additives	4.6
TOTAL PERMITTED DISCHARGE – FOOD PROCESSING			853AFY

Textile Sector - Permittees	City	Product/Process	AFY of discharge
U.S. DYEING & FINISHING INC.	GARDEN GRVE	Broadwoven Fabric Finishing Mills	598.3
B. BRAUN MEDICAL INC.	IRVINE	Noncellulosic Organic Fiber Manufacturing	542.5
SABA TEXTILES INC.	BUENA PARK	Broadwoven Fabric Finishing Mills	398.9
ROYALTY CARPET MILLS, INC.	IRVINE		386.9
K U A TEXTILES INC.	BUENA PARK	Broadwoven Fabric Finishing Mills	79.8
ST. JOHN KNITS, INC.	IRVINE	Textile & Fabric Finishing (exc. Broadwoven Fabric) Mills	55.8
PRIMATEX INDUSTRIES INC.	BUENA PARK	Broadwoven Fabric Finishing Mills	35.9
BASIC FIT LAUNDRY, INC	ORANGE	Textile & Fabric Finishing (exc. Broadwoven Fabric) Mills	16.0
TOTAL PERMITTED DISCHARGE – TEXTILES			2,114 AFY

Metal Plating/Metal-working Sector - Permittees	City	Product/Process	AFY of discharge	
CAL-AURUM INDUSTRIES INC.	HUNTINGTN BCH	Electroplating, Plating, Polishing, Anodizing, & Coloring	47.9	
GKN AEROSPACE TRANSPARENCY SYSTEMS INC.	GARDEN GROVE	Other Aircraft Parts and Auxiliary Equipment Mfg	47.9	
HIXSON METAL FINISHING	NEWPORT BCH	Electroplating, Plating, Polishing, Anodizing, & Coloring	39.1	
OMNI METAL FINISHING, INC.	FTN VALLEY		31.9	
ELECTROLURGY INC.	IRVINE		27.9	
PLATECORP INC. #2	ORANGE		27.1	
ALL METALS PROCESSING OF O.C. INC.	STANTON		24.7	
ELECTRONIC PRECISION SPECIALTIES INC.	BREA		23.9	
CONTINUOUS COATING CORPORATION	ORANGE		Metal Coating, Engraving (except Jewelry and Silverware), and Allied	17.6
ULTRA WHEEL CO. (PLATING)	BUENA PARK	All Other Motor Vehicle Parts Manufacturing	16.0	
ULTRA PURE METAL FINISHING, INC.	ORANGE	Electroplating, Plating, Polishing, Anodizing, & Coloring	14.4	
COASTLINE METAL FINISHING CORP.	GARDEN GROVE		14.4	
ORANGE COUNTY PLATING CO., INC.	ORANGE		12.0	
ELECTRON PLATING III INC.	GARDEN GROVE		10.4	
HIGHTOWER PLATING & MANUFACTURING CO.	ORANGE		9.6	
BRIGHT ARMOR PLATING	PLACENTIA		8.0	
TIODIZE COMPANY, INC.	HUNTINGTN BCH		8.0	
LA HABRA PLATING CO. INC.	LA HABRA		6.4	
RICOH ELECTRONICS INC.	IRVINE		Metal Coating, Engraving (except Jewelry and Silverware), and Allied	6.4
CADILLAC PLATING	ORANGE		Electroplating, Plating, Polishing, Anodizing, & Coloring	5.6
SOUTH COAST FASHION JEWELRY	SAN CLEMENTE	Metal Finishing	5.4	
CANNON EQUIPMENT WEST INC.	GARDEN GROVE	Sheet Metal Work Manufacturing	4.0	
DATA AIRE INC. #2	ORANGE		4.0	
CENTRAL POWDER COATING	BREA	Metal Coating, Engraving (except Jewelry and Silverware), and Allied	4.0	
CUSTOM ENAMELERS INC.	FTN VALLEY		4.0	
KENLEN SPECIALTIES INC.	FTN VALLEY		4.0	
MIRACLE STRIPPING & PLATING, INC.	GARDEN GROVE		4.0	
STAR POWDER COATING	GARDEN GROVE		4.0	
BURLINGTON ENGINEERING, INC.	ORANGE		4.0	
INDUSTRIAL METAL FINISHING, INC.	ORANGE		4.0	
PERFORMANCE POWDER, INC.	ORANGE		4.0	
D & S CUSTOM PLATING INC.	GARDEN GROVE		4.0	
M.S. BELLOWS	HUNTINGTN BCH		Electroplating, Plating, Polishing, Anodizing, & Coloring	4.0
DUNHAM METAL PROCESSING	ORANGE	4.0		
SMC CORPORATION OF AMERICA	TUSTIN	4.0		
WINTEC, LLC	IRVINE	All Other Miscellaneous Fabricated Metal Product Mfg	4.0	
A&G ELECTROPOLISH	FTN VALLEY	Electroplating, Plating, Polishing, Anodizing, & Coloring	4.0	

DYNACAST	LAKE FOREST	Metal processing	1.5
CONTROL COMPONENTS	R.SANTA MARGA	Machining	1.2
TOTAL PERMITTED DISCHARGE – METAL PLATING & METALWORKING			471 AFY

Computers & Electronics Sector - Permittees	City	Product/Process	AFY of discharge
JAZZ SEMICONDUCTOR	NEWPORT BCH	Semiconductor and Related Device Manufacturing	797.8
MICROSEMI INTEGRATED PRODUCTS	GARDEN GROVE		95.7
WINONICS (BREA)	BREA	Computer Storage Device Manufacturing	63.8
MARCEL ELECTRONICS INT.	ORANGE		58.2
PRO-TECH	FTN VALLEY	Bare Printed Circuit Board Manufacturing	49.5
VELIE CIRCUITS INC.	COSTA MESA		47.9
DELPHI CONNECTION SYSTEMS	IRVINE	Printed Circuit Assembly (Electronic Assembly) Mfg	27.9
CIRTECH INC.	ORANGE	Computer Storage Device Manufacturing	23.1
TC COSMOTRONIC INC.	IRVINE		23.1
SANMINA CORPORATION (AIRWAY)	COSTA MESA	Bare Printed Circuit Board Manufacturing	19.9
CARTEL ELECTRONICS, INC.	PLACENTIA	Computer Storage Device Manufacturing	12.8
EXCELLO CIRCUITS MANUFACTURING CORP.	PLACENTIA	Bare Printed Circuit Board Manufacturing	12.8
SANMINA CORPORATION (REDHILL)	COSTA MESA		12.0
PRIME TECHNOLOGIES, INC.	COSTA MESA		9.6
STATEK CORPORATION	ORANGE	Printed Circuit Assembly (Electronic Assembly) Mfg	8.8
SPEEDY CIRCUITS, DIV. OF PJC TECH., INC	HUNTINGTN BCH	Bare Printed Circuit Board Manufacturing	8.0
PAYTON TECHNOLOGY CORP	FTN VALLEY	Other Electronic Component Manufacturing	6.4
FINELINE CIRCUITS & TECHNOLOGY INC.	BREA	Computer Storage Device Manufacturing	5.6
NEUTRONIC STAMPING AND PLATING	FTN VALLEY	Electronic Connector Manufacturing	5.6
PRINTRONIX, INC.	IRVINE	Electronic Computer Manufacturing	4.0
ALLTEK CIRCUIT INC.	IRVINE	Computer Storage Device Manufacturing	4.0
CIRCUIT TECH INC.	ORANGE		4.0
GOMTECH ELECTRONICS, INC.	ORANGE		4.0
ROADRUNNER CIRCUIT TECHNOLOGIES, INC.	BREA	Bare Printed Circuit Board Manufacturing	4.0
UNITED CIRCUIT TECHNOLOGY INC.	FTN VALLEY		4.0
BASIC ELECTRONICS INC.	GARDEN GROVE		4.0
LOGI GRAPHICS INC.	HUNTINGTN BCH		4.0
ROCK INDUSTRIES, INC.	HUNTINGTN BCH		4.0
SOLDERMASK, INC.	HUNTINGTN BCH		4.0
SPEEDY CIRCUITS, FACILITY #2	HUNTINGTN BCH		4.0
CIRCUIT ACCESS	ORANGE		4.0
SUPERIOR PROCESSING	PLACENTIA		4.0

PERFECT LAMINATION INC.	TUSTIN		4.0
WESCO SERVICES	TUSTIN		4.0
SEMICOA SEMICONDUCTORS	COSTA MESA	Semiconductor and Related Device Manufacturing	4.0
STATEK CORPORATION #2	ORANGE	Printed Circuit Assembly (Electronic Assembly) Mfg	4.0
SI TECHNOLOGIES	TUSTIN	Other Electronic Component Manufacturing	4.0
TAYCO ENGINEERING INC.	CYPRESS	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling	4.0
NEWPORT CORPORATION	IRVINE	Analytical Laboratory Instrument Manufacturing	4.0
MEDIA MASTERING SERVICES, LLC	BREA	Prerecorded Compact Disc (except Software), Tape, and Record Reproducing	4.0
CD VIDEO INC.	GARDEN GROVE		4.0
SINGULUS TECHNOLOGIES	IRVINE	Magnetic and Optical Recording Media Manufacturing	4.0
TOTAL PERMITTED DISCHARGE – COMPUTERS AND ELECTRONICS			1,381 AFY

GRAND TOTAL – ALL FOUR SECTORS

4,819 AFY

**Metropolitan Water District of Southern California
Water Conservation Guidelines
Industrial Process Improvement Program**

What is the Industrial Process Improvement Program?

The Industrial Process Improvement Program (IPI) offers financial assistance to local industries to encourage investment in water-saving process improvements. The Program is open to all public and private commercial and industrial users within Metropolitan's service area. Financial assistance is provided for documented water savings derived from projects implemented under the program that meet the minimum qualifying criteria.

What is the Industrial Process Improvement Program?

The Industrial Process Improvement Program (IPI) offers financial assistance to local industries to encourage investment in water-saving process improvements. The Program is open to all public and private commercial and industrial users within Metropolitan's service area. Financial assistance is provided for documented water savings derived from projects implemented under the program that meet the minimum qualifying criteria.

What are the minimum qualifying criteria?

- Proposed improvements must be new. Projects that have commenced construction or that have purchased, leased, or installed equipment prior to agreement execution are excluded from participation in the program.
- Project must be implemented within Metropolitan's service area (a map is available upon request)
- Proposed process improvements must be functional for at least five (5) years.
- Project costs to achieve water savings must have a **minimum** two-year simple pay back to qualify.

How much is the incentive?

Based on project cost and water savings, Metropolitan will pay the **lesser of**:

- A) \$2.36 per 1,000 gallons of actual water saved for a one (1) year monitoring period; or
- B) Fifty (50) percent of the project's water-related process improvement costs; or
- C) Buy down of project cost to reduce the simple pay-back period to two (2) years (project cost minus twice the estimated annual water and wastewater savings).

Financial incentives are subject to availability of Program funds as authorized by Metropolitan's Board of Directors.

What type of improvements qualify?

Typical process improvements that qualify include:

- Installing equipment that will capture, treat and reuse water that would otherwise be discharged to the sewer.
- Replacing existing process equipment with more efficient equipment resulting in reduced water demand.

How will financial assistance be provided?

If a proposed project is selected for program participation, an agreement would be executed indicating the amount of financial assistance that would be provided for the project. Payment would be made in two steps. The first payment is made upon verification of equipment installation and startup/operation of the project. Final payment would be made after a 12-month monitoring period of water saved.

Here's how to apply:

Complete, sign and return the application along with supporting documentation to:

The Metropolitan Water District
of Southern California
Regional Supply Unit - IPI Program, US 9-302
P.O. Box 54153
Los Angeles, CA 90054-0153

The application identifies specific information that is required to determine eligibility including a comprehensive flow diagram. Please allow six to eight (6-8) weeks for project review and determination of eligibility. Projects with major modifications or very complex improvements may require additional review time.

APPENDIX F

PROGRAM COST	Labor Cost	Incentive	TOTAL
MWDOC Program Administration	\$119,852		\$119,852
OCSD Technical Support	\$104,832		\$104,832
Outreach and marketing	\$55,120		\$55,120
FOCUSED SURVEYS	\$80,136		\$80,136
COMPEHENSIVE SURVEYS	\$57,240		\$57,240
Follow-up and implementation support	\$57,240		\$57,240
CUSTOMER INCENTIVES		\$344,589	\$344,589
TOTAL	\$474,420	\$344,589	\$819,009
Cost per acre foot			\$475

Cost Shares			
	<u>Per AF</u>	<u>Total Program</u>	<u>Percent Distrib.</u>
MWD	\$110/\$154	\$189,524	23.1%
DWR	\$235	\$404,801	49.4%
MWDOC prog mgt	\$70	\$119,852	14.6%
Sanitation technical	\$61	\$104,832	12.8%
TOTAL	\$475	\$819,009	100.0%

Agency Participant Services		
	MWDOC	OC Sanitation Districts
Base hours per year	520	416
Blended base rate for agency employees	\$36.59	\$40.00
Multiplier	2.1	2.1
Total base cost per year	\$39,951	\$34,944
Three-year cost	\$119,852	\$104,832

APPENDIX F

TOTAL AF SAVINGS POTENTIAL FROM THE 50 COMPANIES BEING SURVEYED		
Total AF (7 yrs)	Annual AF	Sector
699	99.9	Food Processing
4103	586.1	Textiles
488	69.8	Fabricated Metals
1871	267.3	Electronics
7161	1023.0	

TOTAL AF SAVINGS ACTUALLY RESULTING FROM IMPLEMENTATION OF RECOMMENDATIONS IN THE FOCUSED SURVEYS AND COMPEHENSIVE SURVEYS		
Total AF (7 yrs)	Annual AF	Sector
86	12.3	Food Processing
1354	193.4	Textiles
44	6.3	Fabricated Metals
239	34.1	Electronics
1723	246.1	

PROGRAM COST DETAIL

Total number of candidate companies within the 4 sectors	106
Percentage of companies that will respond to a survey offer	47%
Total number of companies targeted for and receiving FOCUSED SURVEYS	50
Percentage of FOCUSED SURVEYS revealing viable process water savings at a company WILLING to proceed with a COMPREHENSIVE SURVEY	25%
Percentage of FOCUSED SURVEYS revealing viable process water savings but at a company NOT WILLING to proceed with a COMPREHENSIVE SURVEY	75%
Percentage of companies receiving a FOCUSED SURVEY that do NOT receive a COMPREHENSIVE SURVEY but implement one or more recommendations from the FOCUSED SURVEY	30%
Percentage of savings realized from partial implementation of measures recommended in a FOCUSED SURVEY (without a COMPEHENSIVE SURVEY)	25%
Total number of targeted companies receiving COMPREHENSIVE SURVEYS	12
Percentage of companies receiving COMPREHENSIVE SURVEYS that implement the some or all of the survey recommendations	66%
Percentage of recommendations that are implemented by the companies implementing some or all of the COMPREHENSIVE SURVEY recommendations	50%
Incentive payment to end-user implementing measures (\$/AF)	\$280

Appendix G

Joseph M. Berg
28482 Casanal
Mission Viejo, CA 92692
949-916-2147
jmberg@cox.net

KEY QUALIFICATIONS:

- Proven ability to develop multi-jurisdictional programs and funding partnerships
- Extensive knowledge of all sectors of urban water planning and protection
- Strong public speaking experience to local, regional, state and international governments
- Demonstrated ability to inspire, motivate, and lead within a team environment
- Established project development and management experience
- Window 2000, Microsoft Office, Microsoft Internet Explorer, Netscape proficient

EXPERIENCE:

1/98 – present Municipal Water District of Orange County, Fountain Valley, CA

Title: **Water Use Efficiency Programs Manager**

Phone: 714-593-5008

- Developed and planned demand side management programs valued at more than \$6 million annually for the Orange County region
- Provided team leadership for 2000 Regional Urban Water Management Plan of Orange County
- Planned and directed all hiring and staffing for the agency and consultants providing professional services
- Demonstrated county and state leadership in advancing water management, conservation, and environmental policy
- Submitted reports to meet state and federal compliance
- Prepared and maintained departmental budget
- Identify market opportunities for development of expanded programs

3/95 – 1/98

Municipal Water District of Orange County, Fountain Valley, CA

Title: **Water Use Efficiency Programs Supervisor**

- Expanded grant proposal funding to \$4 million annually
- Forged new partnerships with local, regional and state elected officials
- Presented water conservation and environmental concerns to all branches of State government, advocating a collaborative approach to policy design, program assessment and implementation

7/93 – 3/95

Municipal Water District of Orange County, Fountain Valley, CA

Title: **Conservation Coordinator**

- Acquired \$3 million in private and public funding grants to off-set public cost of water program implementation

-
- Produced 1995 Regional Urban Water Management Plan for Orange County including demand estimate, identification of water supply options, conservation activities, and water shortage contingency plan as required by State regulation

11/91 – 7/93

Municipal Water District of Orange County, Fountain Valley, CA
Title: **Public Affairs Assistant**

- Acquired \$2 million in private and public funding grants to off-set public cost of water program implementation
- Developed and implemented public and retail agency water conservation programs
- Conducted public relation campaign designed to promote awareness of residential conservation and environmental programs

2/91 – 11/91

San Diego County Water Authority, San Diego, CA
Title: **Water Conservation Intern**

- Gained general knowledge of broad based water programs
- Developed educational program to inform customer about conservation strategies and opportunities
- Planned and managed quality control of ultra low-flush toilet program

EDUCATION:

9/88 – 6/91

San Diego State University, San Diego, CA
Major: Bachelor of Arts, Resource and Environmental Geography

9/85 – 6/88

Saddleback Community College, Mission Viejo, CA
Major: Associate of Arts, General Education

ACTIVITIES:

May 2000

Guest Speaker, Balleric Island, Spain – Environmental Water Confr.

- Topic - Innovative Partnerships for Water Conservation
- 2000
Convener, California Urban Water Conservation Council
- Developed a three year strategic plan

1/99 – present Vice Chair, Santa Margarita Water Distract Community Advisory Board

- Initiated more consumer involvement in advisory board

1/98 – 4/04

Board Member, Norte Vista Maintenance Corporation

- Homeowner conflict resolution

Excellent References Available Upon Request

- 11661 Rosemary Avenue Fountain Valley, California 92708

SUMMARY OF QUALIFICATIONS

Water Use Efficiency: Seven years experience managing water use efficiency programs for Municipal Water District of Orange County's member agencies..... Member on several committees for the California Urban Water Conservation Council.... Knowledge of the Memorandum of Understanding's Best Management Practices for Urban Water Conservation.... Certified by the American Water Works Association in Water Conservation..... Cal Poly Irrigation Training and Research Center Certified Landscape Irrigation Auditor

Management: More than 10 years management experience.... Experience in customer service relations... Experience in employee hiring, performance evaluation, training, and scheduling... Budget monitoring/control... Inventory control... Purchasing... Equipment acquisition... Managed from 120 to 150 staff for more than 10 years... Merchandising and stock ordering... Assistant Manager and Grocery Manager of a major Southern California retail stores which were consistently among the *Top Ten in Profit*.

Personal Strengths: Professional, reliable, and a strong work ethic... Good interpersonal skills... Skilled in trouble-shooting and in handling difficult customer relations... Excellent oral communication skills... Successful record of client and co-worker relationships... Self-motivated, multi-task oriented, and an intensive problem-solver who sees each project/task to completion.

EDUCATION AND TRAINING

University of California Fullerton
Fullerton, California

Masters of Arts, Geography,
course work complete, thesis in
process.

University of California Fullerton
Fullerton, California

Bachelor of Arts, Geography,
1994. Emphasis: **Environmental
Analysis.**

Orange Coast College
Costa Mesa, California

Associate of Arts,
Business Administration, 1991

Course work included: Environmental Assessment Seminar, 1995; Geographical Information Services, 1994 and 1996; Hydrology, 1994; Cartography, 1993; Principles of Urban Water, 1993; Geomorphology, 1993; Urban Planning Principles, 1995; Urban Planning Methods.

Certificates: American Water Works Association, California – Nevada Section Water Conservation Practitioner Level 1. California Polytechnic State University Irrigation Training and Research Center Certified Landscape Irrigation Auditor

Computer: Microsoft Word and Access; Atlas GIS; Microsoft Excel; ArcView; Arc/Info.

Seminars: Conflict Management, 1993; Management Through Understanding Behavior, 1991; Leadership Seminar, 1990.

PROFESSIONAL EXPERIENCE

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY, Fountain Valley, California

Water Use Efficiency Specialist

1997 - Present

Project Manager for the Commercial, Institutional, and Industrial Water Audit Program and the Protector Del Agua Landscape Training class. Project Manager for the Residential Water Audit Program, conducting over 3,000 audits a year. Assist in managing Municipal Water District of Orange County's (MWDOC) Landscape Certification Program. Project manager for MWDOC's Ultra-Low-Flush Replacement Toilet Program. Assisted in staffing MWDOC's public education efforts at the annual Spring and Garden Show in Costa Mesa.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY, Fountain Valley, California

Water Conservation Assistant

1994 - 1997

Served as Assistant to MWDOC's Water Use Efficiency Program Manager, Joe Berg. Assisted with the Ultra-Low Flush Toilet Program in 1995 and 1996, with implementation of the 1997 program. Created the county's public parks landscape audit data base. Implemented the Protector del Agua Landscape Training Course.

CALIFORNIA STATE UNIVERSITY, FULLERTON, Fullerton, California

Graduate Assistant

1995 - 1996

Graduate assistant in the Geography Department for two full-time Professors. Duties include: assisting in Arcview and Arc/Info classes, classroom organization, tutoring students, and proxy exams.

VONS, Long Beach, California

Clerk

1991 - 1994

Duties include customer service, stocking, inventory control, pricing/price integrity and training of new clerks.

ALPHA BETA, La Habra, California

Manager/Assistant Manager

1985 - 1991

Managerial authority for 80 to 150 employees and responsibility for stores with \$230,000 to \$400,000 weekly sales. Responsibilities include: customer service, employee hiring, performance evaluation and promotion, employee scheduling, job planning, payroll, inventory control, net profit control and shrink control. Also served as Morale Coordinator and was responsible for profit and loss statements, other financial reporting requirements, equipment acquisition, and employee training.

References

Will be furnished upon request.

Appendix H



**Surfrider
Foundation.**

January 10, 2005

California Department of Water Resources
Office of Water Use Efficiency
PO Box 942836
Sacramento, CA 94236-0001

Attn: Debra Gonzalez

RE: Proposition 50 MWDOC Proposal - Industrial Process Water Use Reduction Program

To Whom It May Concern:

I am writing on behalf of the Surfrider Foundation to support the application of the Municipal Water District of Orange County (MWDOC) in their application for Proposition 50 funding – Industrial Process Water Use Reduction Program.

The Surfrider Foundation is a non-profit environmental organization dedicated to the protection and enjoyment of the world's oceans, waves and beaches for all people, through conservation, activism, research and education. Represented by over 40,000 members and 60 local chapters in the U.S., the Surfrider Foundation also has affiliations in Australia, Japan, France, and Brazil.

We feel very strongly that water conservation in general, and MWDOC's proposal in specific, will have direct benefits in reducing Southern California's reliance on water imports. Equally important to the Surfrider Foundation and our members, MWDOC's proposal will result in significant reductions of wastewater flows to local treatment facilities – and consequently indirectly reduce ocean discharges.

Please accept this recommendation on behalf of the Surfrider Foundation and our membership. We look forward to the successful implementation of MWDOC's Industrial Process Water Use Reduction Proposal.

Sincerely,
Signature on file

Joseph Geever, JD
Surfrider Foundation/Southern California Regional Manager
PO Box 6010
San Clemente, CA 92674-6010

Proposal for the

Industrial Process Water Use Reduction Program

by the

**Municipal Water District
of Orange County**

January 10, 2005

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I. Introduction

The reduction of process water use in industry through the traditional water conservation program has been of isolated success in California. In fact, few, if any, water conservation programs in California have been directed solely at process water use in industry¹. Furthermore, few water utility conservation programs have capitalized on the resources and funds of the sanitation districts serving their customers. The Municipal Water District of Orange County (MWDOC) is one of the exceptions, having successfully combined sanitation districts' funding with water utilities' funding to implement water conservation programs.

With this application, MWDOC proposes to fully capitalize upon its existing relationships with the sanitation districts serving Orange County with a program focused upon reducing process water and wastewater flows related to selected industry sectors in the County.

¹ Most programs that include an industrial component usually provide only industrial surveys and end up focusing on plumbing fixtures and other "easy retrofits" within the industrial plant. Funding for implementation of process improvements, if it exists, is usually provided by another (companion) program. A currently successful exception to this characterization is provided later in this application.

II. Executive Summary

Focus on Specific Industry Sectors

The Pacific Institute² (PI) offers the following definition of process water:

“Process water use includes any water uses unique to a particular industry for producing a product or service.”

PI further estimates that “process water use comprised approximately 18 percent (445,000 AF) of all CII use in 2000. Nearly all of this water use took place in the industrial sector...”

MWDOC, working with the Orange County Sanitation Districts (OCSD) and the South Orange County Wastewater Agency (SOCWA), has constructed a unique, cooperative program that will reduce the process water consumption and resultant wastewater flows.

Based upon actual recorded wastewater flows and permits in Orange County³, MWDOC determined that the following industry sectors offered the most promising opportunities for water efficiency improvements in industrial processes:

- Food processing
- Textiles
- Fabricated metals
- High-tech electronics

A more-detailed description of the water savings opportunities and a list of the 106 individual companies in Orange County to be “targeted” by this program are included in Section VII of this proposal.

The four targeted industrial sectors within the MWDOC service area currently generate 4,819 acre-feet per year of wastewater flows to the OCSD treatment plants. Refer to Appendix D for a listing of the companies generating those flows.

OCSD staff indicates that potential exists within these industries for process water efficiencies that could reduce water demands upon MWDOC and wastewater flows to OCSD facilities. Applying the savings potential estimates by the Pacific Institute to the targeted sectors yields water savings potential as follows:

Table 1. Industrial Process Water Savings Potential – MWDOC Service Area

Industrial Sector	Current Wastewater Discharges – AFY (see Appendix D)	Water Savings Potential	
		Percentage as estimated by PI	Annual savings potential (AFY)
Food Processing	853	26%	222
Textiles	2,114	40%	845
Fabricated Metals	471	33%	155
Electronics	1,381	43%	594
Total – Targeted Sectors	4,819		1,816

² Pacific Institute, 2003. *Waste Not, Want Not: The Potential for Urban Water Conservation in California*, November.

³ As detailed in data provided by the two wastewater agencies.

The 1,816 acre-feet of potential annual savings represents an aggressive target for the proposed program. Experience from other less-focused CII programs would confirm that this is an optimistic goal. The approach to this program, however, will differ from previous approaches. Commercial and industrial water survey and incentive programs are known to have low participation and poor customer support. As such, few sites actually follow through with the recommendations and implement the changes suggested.

Our Program Design Overcomes Traditional Barriers to Industrial Survey and Incentive Programs

Our target customer is the industrial customer utilizing process water. This customer does not usually have an efficiency specialist on staff. They have the desire to run their operation efficiently but not the knowledge to understand nor the capital to develop and implement the measures necessary. This program intends to provide some of the missing resources. Instead of offering customers traditional commercial-industrial water surveys and incentives, MWDOC will implement a more-focused, intensive program directed at specific industries and processes.

Traditional commercial-industrial survey and incentive programs fail because of:

- **Weak front-end marketing.** The customer lists are too general and the water agency does not have a strong enough relationship with the customer to gain their attention.

Instead, we will utilize the highly targeted and accurate customer lists of both the OCSD and SOCWA (included here as Appendix D). Staff of these sanitation districts, who have built close ties to our target customers, will team up with our staff on program marketing, survey development, and follow-up. The source control inspectors of the sanitation districts know the facility decision makers at each company and which companies have high retrofit potential.

- **Program design that is too generalized and not focused to specific industry sectors.** One size does not fit all in the industrial customer class.

By selecting four sectors with a high concentration in Orange County and a high water savings potential, we can offer a survey and retrofit package that makes sense for the customers' businesses. Our field engineers and the sanitation districts' source control inspectors will be industry-specific and thoroughly familiar with the customers' water-using manufacturing processes.

- **Overly broad-based surveys that are often not cost effective and direct customers to low volume retrofits.** Because traditional programs attempt to identify every opportunity for savings, the customer will pick through the report and likely select the easiest retrofits opportunities, such as toilets.

Our focus is to show the customer 1.) the value of the process change; 2.) how to make it happen; and 3) where incentive money exists. Our ultimate goals are to save process water and to teach the customer how to implement recommendations on their own as a standard business practice.

-
- **Highly technical reports delivered to non-technical decision makers.** Business owners have limited time and interest in digging through a 20-page survey report filled with complex recommendations. Conservation budgets are quickly consumed and retrofit opportunities are lost if the focus is on producing a thick technical report.

Our survey reports will be prepared by specialists in the sectors and processes being surveyed. They will be clear and concise and will focus on water saving opportunities that have the highest potential of being implemented.

- **Program and report does not place a strong enough emphasis upon the financial payback of the recommendations and the customers' resources.** With an overwhelmingly technical survey report and little follow up, the customer loses focus on the financial picture.

Every element of the program will focus on and emphasize the financial benefits to the customer. The water agency staff, the engineer conducting the audit, the printed report, and the follow-up customer support team will all be equipped to address financial issues when delivering information to the customer. The customers' incentive package with program rebates will provide a strong financial motivation to complete the retrofit process.

- **No follow up after the survey report is delivered.** The customer intends to take the next step but the report simply gathers dust as day-to-day business needs takes priority.

Our program is designed to stay connected with the customer through each step of the audit/survey process and incorporate a post-audit follow-up phase. This includes periodic visits with and calls to the customer to ascertain their progress and offer assistance to overcome problems.

As a result of the design and execution flaws listed above, it is common for customers for customers to lose interest and, as a result, the program falls short of its savings goals.

The proposed MWDOC program will succeed because these flaws will be eliminated by:

- having a strong connection to the customer through the sanitation districts;
- delivering a concise audit/survey report to the customer that identifies process efficiency measures together with the financial impact of implementing those measures;
- providing a valuable incentive package (\$300 per acre foot of water saved); and
- maintaining a relationship with the customer each step of the way.

As such, we conservatively estimate that the proposed program will achieve retrofits of varying magnitudes at 50 of the 106 company sites and deliver 1,723 lifetime acre-feet of water savings (and reduced wastewater flows) to Orange County and California.

III. Statement of Work

A. Section One: Relevance and Importance

MWDOC

MWDOC is a signatory to the Memorandum of Understanding regarding 14 Best Management Practices (BMPs) for urban water conservation in California. Development of this MOU originated through early negotiations between stakeholders searching for a Bay/Delta water solution. Implementation of BMPs is a component of Orange County's Urban Water Management Plan including the incorporation of water savings into demand forecasting as a supply option. As a result, MWDOC is voluntarily committed to a good faith effort to implement all cost-effective BMPs as part of its intention to foster a Bay/Delta solution as a State Water Project water user.

As a regional wholesaler, MWDOC develops, obtains funding for, and implements BMP programs on behalf of its 29 retail member agencies throughout Orange County. Examples of existing or completed programs include Home Water Surveys, Showerhead Retrofits, Metering with commodity charges, Leak Detection and Repair, Large Landscape Audits and Retrofits, Residential Clothes Washer Rebates, Public Information, School Education, Business and Industry Plumbing Fixture Rebates, Providing wholesale agency assistance, Conservation Pricing, Conservation Coordinator work Groups and Training Advocating water waste prohibitions, and Residential Toilet Retrofits. MWDOC and the Irvine Ranch Water District have also pioneered the use of weather-based smart irrigation controllers to save water and reduce irrigation runoff.

BMP 9 – CII water conservation

BMP No. 9 targeting Commercial, Industrial and Institutional water conservation is perhaps one of the least implemented BMPs in the State. As a result, implementation knowledge is limited. The proposed project seeks to expand this limited knowledge base by targeting implementation of BMP No. 9: Industrial Water Conservation on a regional level, including the entire MWDOC service area. Knowledge gained through implementation of this project could benefit other agencies in the State to develop and implement programs of their own. This project could achieve a significant percentage of Orange County's water savings target for this BMP. Regional implementation will allow for greater economies of scale and a more consistent message to local industrial water users.

Proposed Industrial Process Program

As we reach ever increasing saturation rates for the "cookie cutter retrofits" such as toilets, showerheads and high efficiency clothes washers, it is essential that water utilities move on to other prime areas of opportunity. One such opportunity is with the industrial process customer.

Industrial process water use is one of the highest water use business sectors, comprising 18% of our state's water consumption (Pacific Institute), yet has an extremely high potential for water savings. Although the complexity of technical support and services may be far beyond the

conventional water conservation program, it will succeed if designed with customer focus and strong technical and customer support.

The proposed program yields multiple benefits, both locally and to the state. In addition to meaningful water savings, the program will deliver much needed relief in volumes of wastewater flows. Reduction in wastewater flows decreases the burden on the treatment plants and minimizes pollution along our coastal waters.

Since this program is designed to overcome traditional barriers that others have experienced in the past, it can become a viable model for other water agencies needing to address the industrial sector of their customer base. The team approach of program staff along with the Sanitation Districts' staffs will focus the marketing dollars to enlist the best opportunity customer. Tailoring the surveys to the specific industry sector will make the program more cost effective. The heavy focus on financial paybacks in the process will provide a persuasive incentive for the customer to retrofit. The strong customer follow up process (missing from most programs) will prompt customers to make the extra effort to complete the retrofit process.

B. Section Two: Technical/Scientific Merit, Feasibility

Many CII water-efficiency programs directed at the industrial sector are limited in their scope. Some provide only on-site audits while others have limited funding assistance and technical resources for follow-up and implementation of the audit recommendations. By reviewing the performance of past programs, we determined the direction and design of our program.

Historical Approaches to Industrial Audits/Surveys

Our program is designed around learning experiences gained from two major California programs implemented by two water agencies: Metropolitan Water District of Southern California (MWD) CII Survey Program (1991-1996) and Santa Clara Valley Water District (SCVWD) Commercial and Industrial Survey Program (2003-2004). We are folding the positive attributes of each into our program and designing new elements to overcome the negative performance issues.

Below is an overview of these two important historical programs.

Metropolitan Water District – 1991-1996

In 1997, Hagler Bailly Services evaluated the actual impact of the 902 CII water use surveys sponsored by the MWD and conducted during the 1991-1996 period⁴. The evaluation showed that 124 sites out of 157 industrial sites surveyed implemented some of the recommendations, many of which were only toilet replacements. Of the 157 industrial surveys, 56 recommended process water recycling measures, of which 20 were implemented (35 percent). This represented 1,207 acre-feet of lifetime savings.

⁴ Hagler Bailly Services, 1997. *Evaluation of the MWD CII Survey Database, prepared for the Metropolitan Water District of Southern California*, November 19.

It should be noted that incentives were not provided to the customer by the water utilities nor were technical and engineering specialists made available to the industrial firms to facilitate follow-up and implementation. Yet despite the minimal customer offerings, 35 percent of the firms found the resources necessary to implement the improvements.

Those industrial firms choosing not to implement the recommended process water recycling measures were surveyed by Hagler Bailly as to the reasons for their negative decisions. The survey results were as follows:

Financial	35%
Scheduling	5%
Availability/Labor	2%
Impractical	40%
No interest	13%
Report not read	5%

As a result, we have determined that it is crucial to our program's success that the two dominant reasons (financial and impractical) be fully addressed in the proposed Orange County program. Our program will include:

- **Incentives that motivate** the customer to retrofit
- A survey that includes **practical recommendations** in which the customer has expressed an interest.

Santa Clara Valley Water District – 2003-2004

More recently, the SCVWD completed a CII Water Use Survey Program, summarized in a comprehensive final report⁵. Within the industrial sector, a total of 12 firms were surveyed, of which three were in the sectors targeted for the proposed MWDOC program⁶. Of the 12 firms, eight (67 percent) are implementing changes in their industrial operations that reduce water use as a result of the survey work. No firm estimate yet exists as to the magnitude of the expected water savings.

When implementing its survey program, SCVWD adopted three extremely important elements for its program outreach to industrial customers. The district's program included the following positive elements:

- **Experienced consultants** with special technical expertise in process systems for the industrial portion of its CII survey program

⁵ Santa Clara Valley Water District, 2004. *Commercial, Institutional and Industrial Water Use Survey Program, Final Report*, by Pollution Prevention International, Inc., March 25.

⁶ Two firms were within the food processing sector (ConAgra Foods and Mohawk Packaging) and one firm was in the metals sector (SJ Valley Plating).

-
- **Significant financial incentives**⁷ to those industrial firms implementing the recommended measures and demonstrating savings. These incentives are not, however, limited to the survey participants or the recommended measures.
 - **Extensive and focused follow-up** with its industrial customer participants to clearly communicate the benefits and incentives available to those firms implementing the recommended water-efficiency measures.

Because these elements are an integral part of SCVWD's approach to its industrial base, they are experiencing unprecedented 67% retrofit rate among industrial firms in implementing water-efficiency measures and practices.

As a result, the proposed MWDOC program will similarly emphasize these design elements, thereby maximizing the likelihood of implementation of the recommended measures.

Through an evaluation of these previous programs, our industrial process water use reduction program was crafted with the following major components:

Key MWDOC Design Elements

- A specialized program focusing only on companies in the four high potential market sectors
- A highly targeted and accurate customer list from two sanitation districts in Orange County
- Significant sales and technical support from the sanitation districts', organizations with close ties to our key customers.
- A marketing process that is designed to identify the optimum program participants; those with genuine interest and those with significant water savings opportunities, aided in large part by the source control inspectors of the sanitation districts.
- Program engineers and source control inspectors with industry-specific experience
- Surveys that are tailored and sized for each customer
- Reports that showcase the financial benefits of retrofitting
- Incentives that drive the customer to implement the required changes.
- A customer support backbone throughout the entire program to continually motivate the customer toward implementation of the recommended retrofits.

Industrial Customers

The quality of the customer list dictates the overall response rate to a program. MWDOC, working with the sanitation districts in the county, has the highest quality list available, the list of the largest wastewater discharge permittees in the county. This comprehensive list of 106 firms in four targeted sectors may be seen in Appendix D.. This relevant information will allow us to select customers with the highest opportunities for significant water savings.

⁷ SCVWD, under the terms of their WET program, offers \$4 per CCF (\$1,743 per AF) of water saved or 50 percent of the project cost, whichever is less.

Our prime industrial targets are companies that operate with high volume water processes. In the case of Orange County, these customers are predominantly within these sectors:

- Metal plating companies
- Textile manufacturers
- Food processors
- Electronic manufacturers

Most of the listed companies within these sectors are in need of technical support to identify and implement water-efficient processes. They typically do not retain a water-efficiency specialist on staff and are unlikely to retrofit without the aid of a program of type proposed by MWDOC. Further, most of the companies are locally-owned and, as such, less bureaucratic than larger organizations. Thus, they are able to make a retrofit decision and arrange for design and implementation more expeditiously.

Upon award of the grant, MWDOC will work with the sanitation districts and their source control inspectors to prioritize the list to identify the immediate candidates for surveys, i.e. those with the greatest need for source reduction and best potential for water savings.

Marketing

It is our belief that the best marketing is one-on-one with the customer. For our program, the primary vehicle for contact with the customer will be the source control inspectors of the sanitation districts in the county.

With the aid of the inspectors, we will filter out customers that 1) have already implemented process improvements optimizing their wastewater discharges, 2) are clearly not interested in the program, or 3) seem unlikely to or incapable of implementing any retrofit recommendations. (Further marketing of these customers would only drive up the cost of the program and not yield meaningful results.)

Interested customers will be scheduled for a site audit/survey as quickly as is feasible in order to maintain the maximum level of customer interest.

Survey Process

Our program will utilize only professional engineers and technical specialists with specific expertise in our four target sectors. These individuals will become fully acquainted with the customer's business and the most current technologies and best practices for this sector.

Expertise in water-efficient process improvements will be required for:

- Water Reduction
- Water Recycling
- Water Reuse
- And Water Replacement

With this background, the program engineer will be able to gain the confidence and respect of the customer beyond that of an individual with a more general level of knowledge. In all cases,

the assigned source control inspector from the sanitation district will accompany the program engineer on-site and provide an additional technical resource.

The survey (or audit) will focus on the process technologies yielding the best return for the customer and the program. We know that the retrofit will only occur if the customer supports the selected retrofit. For this reason, the program will include two levels of surveys: the Focused Survey and the Comprehensive Survey.

Focused Survey

The Focused Survey will be the first step in the process and will include a limited number of measures, those most likely to be implemented by the customer. The engineer will determine which measure or measures to include, balancing between the customer's interest - measures upon which the customer has indicated a willing to focus - and those measures that are known to save the most water.

The Focused Survey may include only one building on the premises or only one major water-using process; depending upon the customer and the site. The engineer would provide whatever is necessary to clearly illustrate their recommendation(s). The overall goal of the Focused Survey is to give this customer a template showing them how to secure water agency incentives, how to retrofit, and how to incorporate water efficiency into their everyday business.

Comprehensive Survey

The more expensive Comprehensive Survey would follow a Focused Survey and will be provided for those customers expressing a strong interest in pursuing one or more specific process improvement representing significant water savings. The engineer will spend up to three days on-site measuring flows to determine equipment design ranges; identifying water recycling and reuse possibilities as well as equipment retrofits that would result in reduced water usage and wastewater discharges. The engineer would diagram system modifications including *before* and *after* water balance, take supporting photos, and detail a thorough list of measures for the process.

We anticipate that of the total of 106 targeted companies, 48 to 50 will receive a Focused Survey. Of those, 12 will go on to receive a full Comprehensive Survey.

Customer Report

The water conservation industry has yet to vanquish a major design weakness relating to survey programs for commercial and industrial customers. The typical survey reports, with all their technical detail, say little to the customer on how the retrofits or upgrades can benefit their business. The report is often stuffed with technical terminology yet fails to roll up the recommendations for the customer in a summary impact page. As importantly, there is usually no practical next step information to aid the customer in implementing the recommendations.

It is critical that the proposed MWDOC program overcome these design flaws. We will completely overhaul the structure and the look of the typical (but less-than-effective) survey reports. Our reports for both the Focused Surveys and the Comprehensive Surveys will be

reader-friendly – through the use of organization and layout, the report will be informative and useful with:

- A **cover letter** that defines the report sections
- A **summary page** listing all recommended retrofits, upgrades, and changes to operating practices with cost, savings, and payback information.
- A **Water Use and Wastewater Discharge Summary page** that graphically illustrates:
 - How the customer uses water through a water balance chart, pre- and post-retrofit
 - Last 12 months of usage graphed month-by-month
 - What their usage would be if they conducted the retrofit, month-by-month
- Report detail will be **highly customized** to the customer’s specific sector, process and site. Each recommendation will be detailed and include photos and pre- and post-diagrams.
- Include a **“Next Steps” page** that provides the customer with a road map on how to implement the recommended process improvements
- A calculated estimate of the potential range of **grant funding** that could be provided as an incentive to implement the project.
- A **Reference Page** with contact information for MWDOC, the sanitation district source control inspector, Survey Staff and MWD

Report Delivery

An appointment will be made with the company’s decision maker(s) to deliver the survey report. This is required to fully explain the report and motivate the customer to move forward with the retrofit and other recommendations. The engineer will walk the customer through each section of the report and take the time to respond to questions and detail the technical aspects of the process improvements.

The key element of the meeting with the customer is the overall monetary benefit that will be realized should the company implement the recommendations. The engineer will stress the value of program participation; identify the incentives available and the support resources available to help make the recommendations a reality.

The recommendations, incentives and paybacks are explained to the customer. The program engineer will then discuss with the customer how to best begin the process of implementing the efficiency improvement recommendations. The engineer must be a careful listener and clearly comprehend the customer’s day-to-day issues that might delay or cause the customer to discard the implementation of the recommendations. The engineer will need to help solve problems and eliminate barriers.

Application Submittal and Processing

Since many business owners and managers are bogged down with day-to-day business concerns, MWDOC program staff (working with and through the sanitation districts’ source control inspectors) will aid the customer in completing the application and retrofit package required to obtain approval for program participation and incentives. The customer will receive a basic customer information application, requesting general information on account numbers; contact names and a general statement of work.

Next, program staff will work with the customer and help prepare their submittal. The submittal package for those companies requesting and receiving a Comprehensive Survey will include:

- Comprehensive Survey report performed by program engineer
- A process schematic with meter locations shown,
- Complete description of the proposed project
- Cost estimate for the proposed process improvements
- Water and wastewater discharge savings estimates

The MWDOC application and program requirements will mirror the requirements of the MWD Industrial Process Improvement Program, since funding from that program will be an integral part.

MWDOC program staff will review the application submittal to determine if:

- The process change is recommended by the program engineer
- The process design is technically feasible
- The estimated cost to complete the project is reasonable
- The water savings estimates are based upon industry accepted methodologies and are correctly calculated
- The customer commits to post- installation metering and inspections

As noted in Section III.C, Monitoring and Assessment, water savings will be verified through monitoring and metering of the process for a period of at least one year following its start-up.

Customer Support through Retrofit Process

Traditional programs have failed to support the customer once the survey is delivered. MWDOC clearly recognizes that the survey is only the first step in the process and the real work is in aiding and motivating the customer to take each step required in order to complete the efficiency improvements at their site. Once the survey is delivered, a technically trained and highly qualified program representative will maintain contact with the customer on a weekly basis. If the customer has not yet proceeded with implementation, the representative will offer to aid the customer. This may mean that extensive “hand-holding” by the representative is necessary to assist the customer through the implementation process.

Should the process stall during this follow-up period, despite the program representative’s helping hand, the engineer will contact the customer and offer to meet on-site to provide solutions, facilitate contact with the vendors and answer questions regarding the efficiency recommendations. The engineer will again stress the financial benefit of the retrofits to help refocus the customer and provide motivation to continue the process.

Incentive Payments

One integral element of this program that is designed to encourage implementation is the financial incentive available for the process improvement project. Using the framework

developed by MWD for its Industrial Process Improvement (IPI) Program, this MWDOC program will follow the same guidelines (Refer to Appendix E for IPI Program Guidelines). Incentive payments to the company successfully implementing a long-term (minimum 5 years) process improvement will amount to \$280 per acre-foot of water saved over a five-year period.

MWD guidelines specifically provide as follows:

Based on project cost and water savings, Metropolitan will pay the **lesser of**:

- \$2.36 per 1,000 gallons of actual water saved for a one (1) year monitoring period (equivalent to \$154 per acre-foot for five (5) years; or
- Fifty (50) percent of the project's water-related process improvement costs; or
- Buy down of project cost to reduce the simple pay-back period to two (2) years (project cost minus twice the estimated annual water and wastewater savings).

The MWDOC program would supplement MWD's \$154 per acre-foot with another \$126 per acre-foot to offer the full \$280. The MWDOC program would encompass the rules of the MWD program related to measurement and verification of savings as well. See Section III.C., Monitoring and Assessment for a description of the methodology related to monitoring of water savings.

Quality Assurance

MWDOC management ardently guards the customer relationships of its member water agencies by maintaining strong quality controls within each of its program. Our processes have been designed to ensure that high quality services are delivered by each and every employee and contractor and that security and confidentiality is maintained. To ensure the highest levels of integrity in program operations and incentive processing, MWDOC maintains control and focus across all stages of operation. We monitor each Program procedure, from initial customer contact through check generation. To ensure that the program is operating with the maximum integrity, a quality control audit is performed on 100% of all completed payments.

Task List and Schedule

Adept at operating programs on schedule and on goal, MWDOC will implement the program according to the task and timeline shown below.

The months of December 2005, January 2006 and February 2006 will be dedicated to preparing for program start-up activities, including finalizing of the program process details, retaining consultant engineers for the technical activities, working with the sanitation districts to refine the list of candidate companies, development of marketing materials, and final determination on survey and data fields.

Customer marketing and outreach will be kicked off in January 2006 and will continue until the program goals are reached. Surveys will begin as early as April 2006 and the first reports are expected to be delivered to customers by the second half of April. The customer support and follow-up process will begin in May and continue until goals are met. Customer process retrofit projects will begin as early as May 2006 and continue through the third quarter of 2008. The program will conclude on December 31, 2008, and a final report will be delivered in January of 2009.

Below are the specific tasks and calendar year milestones for the proposed program:

	2006				2007				2008			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Contact with target list of companies	-	Begin contact with 106 companies	Continue contact with 106 companies	Recontact with 100 companies	Recontact companies as necessary							
Perform Focused Surveys (50)		6	12	12	10	10						
Perform Comprehensive Surveys (12)		1	3	3	3	2						
Survey follow-up			On 6 completed surveys	On 21 completed surveys	On 36 completed surveys	On 46 completed surveys	On 52 completed surveys	On 43 completed surveys	On 33 completed surveys	On 23 completed surveys		
Application processing					3	6	10	10	10	11		
Project monitoring						3	6	7	8	10	12	3
Incentive payments								5	10	11	12	12

Production Plan and Tasks

In order to reach our customer contact and water savings goals, we must meticulously track each step of the program to ensure that performance is on target. The five major program tasks of the process are:

- The program organization and telephone solicitation process,
- On-site completion of the Focused Surveys
- On-site completion of the Comprehensive Surveys
- Customer follow-up by Program Representative or Program Engineer
- Customer process retrofit completion and Incentive Payments

The costs of each of the five tasks is shown in Table 2. Further detail on program costs is shown in Appendix C and Appendix F.

Table 2. Program cost breakdown

Task	Labor Cost	Incentive	TOTAL
1. Program organization, administration, and telephone solicitation	\$203,412		\$203,412
2. On-site completion of Focused Surveys (50)	\$80,136		\$80,136
3. On-site completion of Comprehensive Surveys (12)	\$57,240		\$57,240
4. Customer follow-up by Program representatives, including monitoring and assessment	\$133,633		\$133,633
5. Customer process retrofit		\$344,589	\$344,589
TOTAL	\$474,420	\$344,589	\$819,009

Following is a more detailed production task list that will be used to keep the program team operating on schedule. Actual production will be compared to this production planner and activity levels will be adjusted to keep the program on target.

Table 3. Program production task list

Task	Completion Date
Finalize the engineering and marketing consultant scopes of work	December 2005
Recruit and retain consultants	January 2006
Coordinate with sanitation district technical specialists to refine and prioritize list of candidate manufacturing companies	January – February 2006
Determine standardized information required for each survey	February 2006
Define survey data fields	February 2006
Define reporting components	February 2006
Draft survey processes and components	February 2006
Draft customer script and priority contact list (in conjunction with sanitation districts' source control inspectors)	February 2006
Contact customer companies, arrange and schedule surveys	March 2006 & ongoing
Generate program database and begin to populate	March 2006
Conduct Focused Surveys	April 2006 & ongoing
Conduct Comprehensive Surveys	May 2006 & ongoing
Deliver survey reports to customer companies	April 2006 & ongoing
Follow-up with customers receiving surveys, support process improvement and incentive applications	May 2006 & ongoing
Modify marketing strategy, scripts, and materials as necessary based upon feedback from first round of contacts with customers	June 2006 & ongoing
Draft and submit monthly/quarterly invoices and reports to funding partners and agencies	March 2006 & ongoing
Draft and submit annual Program report to funding partners and agencies	January 2007 & January 2008
Draft and submit Final Program report to funding partners and agencies	February 2009

Note: Above schedule dates assume and are dependent upon a January 1, 2006 funding commitment

Environmental Documentation

A “project” as defined by CEQA, California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15378 is: "... the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment...."

As such, this program does not meet the requirements of the “project” definition and is therefore not subject to CEQA.

C. Section Three: Monitoring and Assessment

Monitoring of the proposed program is critical to maintaining the integrity and longevity of the water savings to be achieved. This program does not rely upon one-for-one equipment replacements (such as toilet fixtures, cooling tower controllers, or x-ray machine recirculating systems, where unit savings have already been established), instead encouraging and incenting customers to implement engineered process changes in their production operations. As such, nearly every change will be unique and will require some form of measurement and verification.

MWD's Industrial Process Improvement (IPI) program requires that water meters be installed to validate and forecast savings from process changes that are subsidized by the program. Because the MWD funding (at \$154 per acre-foot) is integral to this program⁸, the rules of the IPI program will apply to this MWDOC program. As noted in Appendix E, payment to a customer would be subject to one full year of monitoring of process water savings (the "after" condition) once the process change has been determined to be fully operational. In most cases, a "before" condition would also be measured, depending upon the process operation and the metering that may already be in place. Water meter locations would be selected by MWDOC program personnel, working in conjunction with MWD staff⁹. Water meters would then be periodically read by MWDOC program personnel, data would be collected and analyzed, and actual water savings computed. All of the analyses would be conducted by program technical personnel in conjunction with MWD staff and a savings assessment developed.

Except in the most unique or unusual situations, monitoring with water meters would conclude one year after official "start-up" of the new process had been declared by the customer. The official final report and savings assessment would be provided to the customer, MWDOC management, its affected member water agency, MWD, the appropriate sanitation district, and the Department of Water Resources. In addition to savings, this final report and assessment will include a:

- Complete description of the project (with company proprietary information withheld),
- A process schematic with meter locations shown,
- Description of the methodology for obtaining the needed data and defining water savings and wastewater flow reductions,
- Description of technologies employed that might be applicable to other companies in the same industrial sector,
- Description of problems encountered in design and implementation,
- Itemization of project costs and incentive payments, and
- Other information unique to the project.

⁸ The MWD funding of \$154 per acre foot of savings will be combined with another \$126 per acre foot from this program to provide a total of \$280 per acre-foot to customers implementing process improvements under this program. That incentive payment is computed on the basis of five years of savings. Other restrictions apply, some of which are documented in Appendix E.

⁹ In most cases, the sanitation district's source control inspector would also be consulted as to meter locations, in order to provide that agency with valuable wastewater information as well.

The cost of the Monitoring and Assessment and Reporting elements of the program is estimated at \$57,240, of which half is designated for Monitoring and Assessment (\$28,620).

IV. Qualifications of the Applicant and Cooperators

MWDOC

The Municipal Water District of Orange County has long operated water efficiency programs for its customers including residential, commercial and industrial offerings. A list of our major programs is shown below:

- ULFT Rebate Program
- Residential Landscape Seminars
- Professional Landscape Classes
- Landscape Certification Program
- Residential HEW Program
- The SmarTimer Program for Residential & Commercial
- CII Customer Rebate Program (prescriptive measures)

Leading the MWDOC water efficiency organization is industry veteran, Mr. Joe Berg. Mr. Berg has held the position of Water Efficiency Manager for MWDOC since 1998. Carrying management responsibility for the complete portfolio of water efficiency programs listed above, he clearly demonstrates the required abilities to oversee MWDOC's proposed industrial program. His diverse program background is grounded in program design as well as all aspects of implementation. Mr. Berg will handle all invoicing, reports and communication with DWR.

Mr. Steve Hedges will act as MWDOC's program supervisor for the proposed program, handling the day to day operations of the project. Mr. Hedges possesses over 10 years of experience in water-efficiency programs at MWDOC, managing the daily activities of numerous programs including audit programs, toilet replacement programs, and training and education programs.

Resumes of the Mr. Joe Berg and Mr. Steve Hedges may be found in Appendix G.

Orange County Sanitation Districts (OCSD)

Acting as a program cooperator, OCSD will provide many benefits to the program.

The OCSD is a public agency that is successful by working as a team and by leveraging their efforts with other public agencies. The OCSD is committed to protect public health and the environment by developing, integrating, and implementing fiscally responsible solutions to wastewater, water reclamation and watershed protection issues.

For this program, OCSD will provide the following services to MWDOC's program:

1. The targeted permittee list with detail on manufacturing processes and wastewater flow volume (see Appendix D).
2. Program technical resources to support marketing and on-site visits, including source control inspectors as the intermediary between the program and the customer as well as providing the technical and operational knowledge of each of the 106 candidate companies.

V. Outreach, Community Involvement, and Acceptance

The design of this program does not provide for direct participation by community groups but does provide aid through a number of other means.

The program will provide direct outreach to the business community including businesses that may be minority- or women-owned. As a small to mid-size manufacturing business, many are being hit hard economically and are electing to leave California. By providing a more positive cash flow through reduction of water and wastewater charges, we are aiding these companies and creating a favorable business environment. This, in turn, will bring economic benefits to the local community as well as to the state. Representing the business community supporting the program is the Orange County Business Council.

Additionally, by strengthening the financial balance sheet of these businesses, we are indirectly boosting job stability for the workers employed at these manufacturing facilities. Many of the employees are at the lower end of the wage scale and need a financially stable employer to earn their living and make ends meet for their households.

The retrofit vendors will receive the benefit of increased sales as a result of the program. It is our hope that this program will act as the catalyst and prompt a customer mindset of water efficiency, leading to future process improvements and future vendor sales down the road that will further spur the economy.

Furthermore, local environmental groups, such as Coast Keeper and Surfrider, support the proposal for its dedication to reducing water demand, resulting wastewater flows, and potential contamination of Orange County beaches.

Program support letters are included herein as Appendix H.

VI. Innovation

The innovative aspect of this program is MWDOC's ability to penetrate the industrial sector with water efficiency opportunities that clearly benefit the participating companies in the four target sectors. History shows that the water industry has long desired to impact the industrial sector with state-of-the-art technology improvements, but with minimal success.

Probably the most significant and innovative strategy to be utilized in this program is the partnering with the local sanitation districts (OCSD and SOCWA) to pursue mutually beneficial process improvements in local manufacturing. This strategy brings to bear on this program the very specialized expertise of the source control inspectors of the sanitation districts, who are familiar with the industrial processes used within all of the companies listed in Appendix D. These individual specialists bring both technical knowledge and familiarity with the engineers and managers of these companies. By working together in partnership, the business community and the environment experience a "double-benefit", reducing water consumption and wastewater discharges.

The industrial market is estimated to have a savings opportunity of more than 25 percent of current demand volume, yet, in the past, agencies have always had difficulty gaining customer participation and follow through. Because of the partnerships with the sanitation districts, our program is expected to deliver a 47 percent participation rate with water demand reductions averaging five (5) acre-feet per year per site (50 sites), a savings rate that would serve as a model for other water agencies.

Most industrial survey programs require that the customer take full initiative to pursue the audit and coordinate the retrofits. The proposed MWDOC program breaks tradition with these programs by providing a strong customer support backbone throughout the program. One of the major goals of the program is to aid the customer and gently push the customer from the audit through completion of the retrofit, providing significant financial incentives along the way.

It is our strong belief that the industrial process market can be penetrated with partnerships, the correct program design, and customer support. We respectfully request the opportunity to lead the industry in this very important initiative.

VII. Costs and Benefits

A. Industry Focus and Water Savings Potential

Selected Industry Sectors

MWDOC, working with the County Sanitation Districts of Orange County (OCSD) and the South Orange County Wastewater Agency (SOCWA), has constructed a unique, cooperative program that will reduce the process water consumption and resultant wastewater flows.

Based upon actual recorded wastewater flows and permits in Orange County¹⁰, MWDOC determined that the following four industry sectors were the most dominant in the county and offered the most promising opportunities for water efficiency improvements in industrial processes:

- Food processing
- Textiles
- Fabricated metals
- High-tech electronics

Further analysis by the Pacific Institute¹¹ of the four targeted sectors concluded the following:

Food Processing (SIC 20)

PI focused on four categories within Food Processing: meat processing (SIC 201), dairy products (SIC 202), preserved fruits and vegetables (SIC 203), and beverages (SIC 208). Within Orange County's food processing industry, the latter three dominate. Therefore the following data on potential water savings focuses on those three sub-sectors:

Table 4. Potential process water savings – Food Processing Industry

Sub-sector	Conservation Measures	Water Savings Potential
Dairy products	Recirculation of carton cleaning water, recycle dilute rinses, reverse osmosis systems,	25%
Preserved fruits and vegetables	Reuse of cooling and rinse water, recycling of steam condensate, sanitizing reconditioned water for contact use, self-closing nozzles	25%
Beverages*	Reuse of cooling and rinse water, sanitize reconditioned water for contact use, self-closing nozzles	27%
Total Food Processing – Process Water		26%

Sources: Pacific Institute, Appendix F, Tables F-7, F-13, and F-17

*-process water use only; consumptive use of water is excluded

¹⁰ As detailed in data provided by the two wastewater agencies.

¹¹ Pacific Institute, 2003. *Waste Not, Want Not: The Potential for Urban Water Conservation in California*, November.

Textile Industry (SIC 22)

Within the textile industry, 90 percent of water is used for processes (Appendix F, p16). Those processes and the potential water savings are as follows:

Table 5. Potential process water savings – Textile Industry

Textile Process	Conservation Measure	Portion of Process Use	Water Savings Potential
Preparation	Reuse of scouring, bleach and mercerizing water	15%	33%
Dyeing	Reuse of rinse water from dyeing for dye bath make-up; use of reclaimed water in carpet dyeing; avoiding bath overflow	52%	56%
Printing		6%	10%
Washing	Counter current washing; spray rinsing	27%	18%
Total Textiles – Process Water		100%	40%

Source: Pacific Institute, Appendix F, Table F-22

Fabricated Metals (SIC 34)

This sector covers machining, cleaning, treating, coating, and painting metal parts. Water is used primarily for rinsing components after the various chemical processes and in preparing chemical baths. (Appendix F, p23)

PI reports that: “Southern California supports the largest Fabricated Metals industry in the United States due to the region’s aircraft and electronics industries.” This fact is clearly evident by the large number of firms in Orange County that are classified in this sector.

According to PI, within the typical fabricated metals company, an estimated 67 percent of water use is for processes and 15 percent is used for cooling.

Table 6. Potential process water savings – Fabricated Metals Industry

Conservation Measure	Savings potential
Counter current rinsing	50-60%
Spray rinses	60%
Reactive or cascade rinses	50%
Conductivity controllers	40%
Timer rinse controls	40%
Acid recovery systems	50%
Total Fabricated Metals – Process Water	33%

Source: Pacific Institute, Appendix F, Table F-28

High-tech Electronics (SICs 357, 36 and 38)

This sector includes printed circuit board manufacturing and assembly, semiconductor manufacturing, computer and office equipment manufacturing, and instrument manufacturing. Process water use is comprised primarily of rinsing, tool cleaning, scrubbing. (Pacific Institute, Appendix F, p26)

PI has estimated water savings potential as follows:

Table 7. Potential process water savings – High-Tech Electronics Industry

Process	Conservation Measure	Portion of Process Use	Water Savings Potential
Rinsing	Rinse optimization, reuse of rinse effluent, modify rinse tools, cascade rinsing, spray rinses	80%	5-50%
Scrubbers	Reuse rinse effluent in wet scrubbers	10%	5%
Ultra Purified Water Production	Improve efficiency of production unit	10%	10%
Total Textiles – Process Water		100%	43%

Source: Pacific Institute, Appendix F, Table F-32

County Sanitation Agencies

The Orange County Sanitation District (OCSD) comprises nine sanitation districts located within the boundaries of Orange County and within the service area of MWDOC. These districts cover over 450 square miles and encompass 23 cities in the north part of the county. Each city and sewer district operates their own collection system, and each discharges into OCSD’s trunk collection and conveyance system. From there, the waste is transported to one of two treatment plants.

The South Orange County Wastewater Agency (SOCWA) provides similar treatment services in the south portion of the county.

Reducing or limiting wastewater discharges into local collection systems is a critical need of the both sanitation agencies. As such, the OCSD already participates with MWDOC in its water conservation programs by providing funding support that underwrites some of MWDOC’s program costs. Within the industrial sector, significant discharges by firms within the four targeted sectors represent opportunities for further efficiencies.

Together, the four targeted sectors represent 65 percent of all wastewater discharges by industrial firms and other organizations on OCSD’s and SOCWA’s industrial permittee list¹². Appendix D lists the companies within the four targeted industrial sectors (and within the MWDOC service area) and the currently permitted discharges to the collections system that feeds the OCSD and SOCWA treatment plants.

Overall Water Savings Potential in MWDOC Service Area-4 Targeted Sectors

As stated earlier, the four targeted industrial sectors within the MWDOC service area currently generate 4,819 acre-feet per year of wastewater flows to the OCSD treatment plants. Refer to

¹² OCSD’s permittee list consists of 397 permits, of which 206 are organizations within the service area of MWDOC. Of the 206 organizations, 101 are industrial firms within the four targeted sectors (another 5 are on the SOCWA’s list). It should be noted that while MWDOC serves the majority of Orange County, the Orange County cities of Santa Ana, Fullerton, and Anaheim are not within the MWDOC service area. A portion of the wastewater discharges to the CSDOC system (from the 193 organizations not included above) are from those three cities and, as such, are not included in Table ZZ.

Appendix D for a listing of the companies generating those flows. Applying the savings potential estimates by the Pacific Institute to the targeted sectors yields water savings potential estimated at 1,816 acre-feet per year (Refer to Table 1 in Section II).

The 1,816 acre-feet of potential annual savings represents an aggressive target for the proposed program. Experience from other less-focused CII programs would confirm that this is an optimistic goal. The approach to the MWDOC program, however, will differ from previous approaches by other water utilities. Refer to Section III for details.

MWDOC’s Approach and Expected Water Savings

MWDOC’s approach will be patterned largely after the successful program of the SCVWD, incorporating the key elements listed above, but focused on the four target sectors. Furthermore, the targeting of specific sectors and firms within those sectors through the OCS and SOCWA field staffs¹³ will avoid the early problems with the MWD program and enable the proposed MWDOC program to gain access to all of the targeted firms.

A more complete description of the outreach approach, two-tiered survey methods, specialization of the consultant team, and follow-up procedure can be found in Section III of this proposal.

Forecasted water savings for MWDOC’s proposed *Industrial Process Water Use Reduction Program* are based upon the water savings potential within the four targeted industrial sectors and the expected “capture” percentages for surveys and implementation. Table 8 summarizes that assessment. Full detail on the estimate of savings is found in Appendix F.

Table 8. Water Savings “Capture” – Proposed MWDOC Industrial Program

Targeted industrial sector	No. of candidate firms the in sector	Water savings potential (AFY)	No. of survey visits*	Water savings potential identified in the surveys (AFY)	Water savings actually captured**	
					AFY	Life-time***
Food Processing	17	222	7	100	12	86
Textiles	8	845	6	586	193	1354
Fabricated Metals	39	155	18	70	6	44
Electronics	42	594	19	267	34	239
Total – Targeted Sectors	106	1,816	50	1,023	246	1,723

*-Conservatively estimated at 47 percent of candidate firms, although successful survey appointments and visits actually experienced in the MWD program of 1991-1996 were 95 percent

**-Although the SCVWD is achieving a 67 percent implementation rate with extensive follow-up, the projected realization of savings for this proposed program is based upon the more conservative estimate of 24 percent, which is less than the actual implementation achieved on MWD’s 1991-1996 program that had no follow-up with customers.

***-Lifetime savings based upon 7-year life.

¹³ The field staff of source control inspectors will be an integral part of the contact, process assessment, and follow-up elements of the proposed program. These individuals have a first-hand, day-to-day knowledge of the processes within the companies they service.

B. Benefits

The primary benefits of the project are water demand reductions by the targeted industries as follows:

Table 9. Realized Water Savings by Industrial Sector

TOTAL AF SAVINGS ACTUALLY RESULTING FROM FOCUSED SURVEYS AND COMPEHENSIVE SURVEYS AND IMPLEMENTATION OF THEIR RECOMMENDATIONS		
Total AF (7 yrs)	Annual AF	Sector
86	12.3	Food Processing
1354	193.4	Textiles
44	6.3	Fabricated Metals
239	34.1	Electronics
1723	246.1	All sectors

Approximately 34 percent of MWDOC's water is drawn from the State Water Project sources, the balance coming from the Colorado River and groundwater. The blended avoided cost of this water is \$312.81 per acre foot. The total value, then, of the water saved is \$538,972, or \$77,000 annually.

Water savings targeted through implementation of this program are projected at 1,723 acre-feet¹⁴. A range of 10 to 40 percent of this saved water originates from the State Water Project, depending on both the annual and seasonal mix of imported water delivered into the region. The remaining saved water originates from the Colorado River and local groundwater.

The majority of saved water will translate into reduced wastewater flows into the Orange County sanitation districts' treatment systems. The majority of the sanitation districts' wastewater flows are treated and discharged into the Pacific Ocean while approximately 7,500 acre feet are treated to reclaimed water standards and reused locally for irrigation purposes. By 2007, an additional 72,000 acre feet will be diverted before ocean discharge and treated for groundwater recharge purposes. The proposed project will contribute to this reclaimed water total.

With the Orange County Sanitation District as a project partner, industrial process water use efficiency measures implemented will likely improve discharge water quality for participating industries thereby improving the quality of water discharged into the wastewater collection and treatment system and improving source water for both reclaimed and groundwater recharge projects.

C. Costs

The costs of the proposed program are detailed in Section III.C, and in Appendices C and F.

¹⁴ Some savings may accrue from the concurrent replacement of plumbing fixtures within the targeted companies.

APPENDIX A: Project Information Form 2004 Water Use Efficiency Proposal Solicitation Package

Applying for:

Urban

Agricultural

1. (Section A) **Urban or Agricultural Water Use Efficiency Implementation Project**

- (a) Implementation of Urban Best Management Practice #9 – Industrial Program
- (b) implementation of Agricultural Efficient Water Management Practice, # _____
- (c) implementation of other projects to meet California Bay-Delta Program objectives, Targeted Benefit # or Quantifiable Objective #, if applicable

(d) Specify other: _____

2. (Section B) **Urban or Agricultural Research and Development; Feasibility Studies, Pilot, or Demonstration Projects; Training, Education or Public Information; Technical Assistance**

- (e) research and development, feasibility studies, pilot, or demonstration projects
- (f) training, education or public information programs with statewide application
- (g) technical assistance
- (h) other

3. Principal applicant
(Organization or affiliation):

Municipal Water District of Orange County (MWDOC)

4. Project Title:

Industrial Process Water Use Reduction Program

5. Person authorized to sign and submit proposal and contract:

Name, title **Kevin P. Hunt, General Manager**

Mailing address **P. O. Box 20895**

Fountain Valley, CA 92728

Telephone **(714) 593-5026**

Fax. **714-964-9389**

E-mail **khunt@mwdoc.com**

6. Contact person (if different):	Name, title.	Mr. Joseph Berg
	Mailing address.	P. O. Box 20895
		Fountain Valley, CA 92728
	Telephone	714-593-5008
	Fax.	714-964-9389
	E-mail	jberg@mwdoc.com

7. Grant funds requested (dollar amount): **\$404,801**
(from Table C-1, column VI)

8. Applicant funds pledged (dollar amount): **\$414,208**

9. Total project costs (dollar amount): **\$819,009**
(from Table C-1, column IV, row n)

10. Percent of State share requested (%): **49.4%**
(from Table C-1)

11. Percent of local share as match (%): **50.6%**
(from Table C-1)

12. Is your project locally cost effective?
Locally cost effective means that the benefits to an entity (in dollar terms) of implementing a program exceed the costs of that program within the boundaries of that entity.

(If yes, provide information that the project in addition to Bay-Delta benefit meets one of the following conditions: broad transferable benefits, overcome implementation barriers, or accelerate implementation.)

(a) yes
 (b) no

11. Is your project required by regulation, law or contract?
 If no, your project is eligible.

(a) yes
 (b) no

If yes, your project may be eligible only if there will be accelerated implementation to fulfill a future requirement and is not currently required.

Provide a description of the regulation, law or contract and an explanation of why the project is not currently required.

12. Duration of project (month/year to month/year): January 1, 2006 through December 31, 2008

13. State Assembly District where the project is to be conducted: **56, 60, 67, 68, 69, 70, 71, 72 and 73**
14. State Senate District where the project is to be conducted: **29, 33, 34, 35 and 38**
15. Congressional district(s) where the project is to be conducted: **40, 42, 44, 46, 47 and 48**
16. County where the project is to be conducted: **Orange County**
17. Location of project (longitude and latitude) **Longitude 117° 50' W
Latitude 33° 45' N**
18. How many service connections in your service area (urban)? **590,706**
19. How many acre-feet of water per year does your agency serve? **312,642 Imported**
20. Type of applicant (select one):
- (a) City
 - (b) County
 - (c) City and County
 - (d) Joint Powers Authority
 - (e) Public Water District
 - (f) Tribe
 - (g) Non Profit Organization
 - (h) University, College
 - (i) State Agency
 - (j) Federal Agency
 - (k) Other
 - (i) Investor-Owned Utility
 - (ii) Incorporated Mutual Water Co.
 - (iii) Specify _____
21. Is applicant a disadvantaged community? If 'yes' include annual median household income.
(Provide supporting documentation.)
- (a) yes, _____ median household income
 - (b) no

APPENDIX B: Signature Page

2004 Water Use Efficiency Proposal Solicitation Package

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form has the legal authority to submit the proposal on behalf of the applicant;

There is no pending litigation that may impact the financial condition of the applicant or its ability to complete the proposed project;

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;

The applicant will comply with all terms and conditions identified in this PSP if selected for funding; and

The applicant has legal authority to enter into a contract with the State.

Signature

Name and title

1/10/2005
Date

2004 Water Use Efficiency Proposal Solicitation Package

APPENDIX C: Project Costs and Benefits Tables

Table C- 1: Project Implementation Costs (Budget)

Table C- 2: Annual Operations and Maintenance Costs

Table C- 3: Total Annual Project Costs

Table C-4: Capital Recovery Factor

Table C- 5: Project Annual Physical Benefits (Quantitative and Qualitative Description of Benefits)

Table C- 6: Project Annual Local Monetary Benefits

Table C- 7: Project Local Monetary Benefits and Project Costs

Table C- 8: Applicant's Cost Share and Description

Appendix D

Discharge Permittees – by Industrial Sector

Food Processing Sector - Permittees	City	Product/Process	AFY of discharge
HOUSE FOODS AMERICA CORPORATION	GARDEN GROVE	Soybean Processing	223.4
MARUCHAN INC.	IRVINE	Dry Pasta Manufacturing	91.7
AMERIPEC INC.	BUENA PARK	Soft Drink Manufacturing	79.8
SEVEN-UP BOTTLING COMPANY	BUENA PARK		71.0
DEAN FOODS CO. OF CA. INC. (MILK PLANT)	BUENA PARK	Fluid Milk Manufacturing	70.2
KNOTT'S BERRY FARM FOODS	PLACENTIA	Fruit and Vegetable Canning	55.8
PEPSI-COLA BOTTLING GROUP	BUENA PARK	Soft Drink Manufacturing	51.9
UNION FOODS INC.	IRVINE	Dry Pasta Manufacturing	37.5
CLEUGH'S FROZEN FOODS, INC.	BUENA PARK	Frozen Fruit, Juice, and Vegetable Manufacturing	33.5
MARUCHAN, INC.	IRVINE	Dry Pasta Manufacturing	32.7
FROZSUN FOODS, INC.	PLACENTIA	Frozen Foods	30.3
DEAN FOODS CO. OF CA. INC.	BUENA PARK	Ice Cream Manufacturing	28.7
TODDS A DIVISION OF HJ HEINZ CO., L.P.	IRVINE	Dry, Condensed, & Evaporated Dairy Product Mfg.	19.1
RALPHS GROCERY COMPANY (BAKERY)	LA HABRA	Commercial Bakeries	9.6
PICK UP STIX COMMISSARIES	SAN CLEMENTE	Food Preparation and Processing – Meat & Vegetables	6.9
VILLA PARK ORCHARDS ASSOCIATION	ORANGE	Citrus Processing	5.6
FLAVORCHEM	SAN CLEMENTE	Food Additives	4.6
TOTAL PERMITTED DISCHARGE – FOOD PROCESSING			853AFY

Textile Sector - Permittees	City	Product/Process	AFY of discharge
U.S. DYEING & FINISHING INC.	GARDEN GRVE	Broadwoven Fabric Finishing Mills	598.3
B. BRAUN MEDICAL INC.	IRVINE	Noncellulosic Organic Fiber Manufacturing	542.5
SABA TEXTILES INC.	BUENA PARK	Broadwoven Fabric Finishing Mills	398.9
ROYALTY CARPET MILLS, INC.	IRVINE		386.9
K U A TEXTILES INC.	BUENA PARK	Broadwoven Fabric Finishing Mills	79.8
ST. JOHN KNITS, INC.	IRVINE	Textile & Fabric Finishing (exc. Broadwoven Fabric) Mills	55.8
PRIMATEX INDUSTRIES INC.	BUENA PARK	Broadwoven Fabric Finishing Mills	35.9
BASIC FIT LAUNDRY, INC	ORANGE	Textile & Fabric Finishing (exc. Broadwoven Fabric) Mills	16.0
TOTAL PERMITTED DISCHARGE – TEXTILES			2,114 AFY

Metal Plating/Metal-working Sector - Permittees	City	Product/Process	AFY of discharge	
CAL-AURUM INDUSTRIES INC.	HUNTINGTN BCH	Electroplating, Plating, Polishing, Anodizing, & Coloring	47.9	
GKN AEROSPACE TRANSPARENCY SYSTEMS INC.	GARDEN GROVE	Other Aircraft Parts and Auxiliary Equipment Mfg	47.9	
HIXSON METAL FINISHING	NEWPORT BCH	Electroplating, Plating, Polishing, Anodizing, & Coloring	39.1	
OMNI METAL FINISHING, INC.	FTN VALLEY		31.9	
ELECTROLURGY INC.	IRVINE		27.9	
PLATECORP INC. #2	ORANGE		27.1	
ALL METALS PROCESSING OF O.C. INC.	STANTON		24.7	
ELECTRONIC PRECISION SPECIALTIES INC.	BREA		23.9	
CONTINUOUS COATING CORPORATION	ORANGE		Metal Coating, Engraving (except Jewelry and Silverware), and Allied	17.6
ULTRA WHEEL CO. (PLATING)	BUENA PARK	All Other Motor Vehicle Parts Manufacturing	16.0	
ULTRA PURE METAL FINISHING, INC.	ORANGE	Electroplating, Plating, Polishing, Anodizing, & Coloring	14.4	
COASTLINE METAL FINISHING CORP.	GARDEN GROVE		14.4	
ORANGE COUNTY PLATING CO., INC.	ORANGE		12.0	
ELECTRON PLATING III INC.	GARDEN GROVE		10.4	
HIGHTOWER PLATING & MANUFACTURING CO.	ORANGE		9.6	
BRIGHT ARMOR PLATING	PLACENTIA		8.0	
TIODIZE COMPANY, INC.	HUNTINGTN BCH		8.0	
LA HABRA PLATING CO. INC.	LA HABRA		6.4	
RICOH ELECTRONICS INC.	IRVINE		Metal Coating, Engraving (except Jewelry and Silverware), and Allied	6.4
CADILLAC PLATING	ORANGE		Electroplating, Plating, Polishing, Anodizing, & Coloring	5.6
SOUTH COAST FASHION JEWELRY	SAN CLEMENTE	Metal Finishing	5.4	
CANNON EQUIPMENT WEST INC.	GARDEN GROVE	Sheet Metal Work Manufacturing	4.0	
DATA AIRE INC. #2	ORANGE		4.0	
CENTRAL POWDER COATING	BREA	Metal Coating, Engraving (except Jewelry and Silverware), and Allied	4.0	
CUSTOM ENAMELERS INC.	FTN VALLEY		4.0	
KENLEN SPECIALTIES INC.	FTN VALLEY		4.0	
MIRACLE STRIPPING & PLATING, INC.	GARDEN GROVE		4.0	
STAR POWDER COATING	GARDEN GROVE		4.0	
BURLINGTON ENGINEERING, INC.	ORANGE		4.0	
INDUSTRIAL METAL FINISHING, INC.	ORANGE		4.0	
PERFORMANCE POWDER, INC.	ORANGE		4.0	
D & S CUSTOM PLATING INC.	GARDEN GROVE		4.0	
M.S. BELLOWS	HUNTINGTN BCH		Electroplating, Plating, Polishing, Anodizing, & Coloring	4.0
DUNHAM METAL PROCESSING	ORANGE	4.0		
SMC CORPORATION OF AMERICA	TUSTIN	4.0		
WINTEC, LLC	IRVINE	All Other Miscellaneous Fabricated Metal Product Mfg	4.0	
A&G ELECTROPOLISH	FTN VALLEY	Electroplating, Plating, Polishing, Anodizing, & Coloring	4.0	

DYNACAST	LAKE FOREST	Metal processing	1.5
CONTROL COMPONENTS	R.SANTA MARGA	Machining	1.2
TOTAL PERMITTED DISCHARGE – METAL PLATING & METALWORKING			471 AFY

Computers & Electronics Sector - Permittees	City	Product/Process	AFY of discharge
JAZZ SEMICONDUCTOR	NEWPORT BCH	Semiconductor and Related Device Manufacturing	797.8
MICROSEMI INTEGRATED PRODUCTS	GARDEN GROVE		95.7
WINONICS (BREA)	BREA	Computer Storage Device Manufacturing	63.8
MARCEL ELECTRONICS INT.	ORANGE		58.2
PRO-TECH	FTN VALLEY	Bare Printed Circuit Board Manufacturing	49.5
VELIE CIRCUITS INC.	COSTA MESA		47.9
DELPHI CONNECTION SYSTEMS	IRVINE	Printed Circuit Assembly (Electronic Assembly) Mfg	27.9
CIRTECH INC.	ORANGE	Computer Storage Device Manufacturing	23.1
TC COSMOTRONIC INC.	IRVINE		23.1
SANMINA CORPORATION (AIRWAY)	COSTA MESA	Bare Printed Circuit Board Manufacturing	19.9
CARTEL ELECTRONICS, INC.	PLACENTIA	Computer Storage Device Manufacturing	12.8
EXCELLO CIRCUITS MANUFACTURING CORP.	PLACENTIA	Bare Printed Circuit Board Manufacturing	12.8
SANMINA CORPORATION (REDHILL)	COSTA MESA		12.0
PRIME TECHNOLOGIES, INC.	COSTA MESA		9.6
STATEK CORPORATION	ORANGE	Printed Circuit Assembly (Electronic Assembly) Mfg	8.8
SPEEDY CIRCUITS, DIV. OF PJC TECH., INC	HUNTINGTN BCH	Bare Printed Circuit Board Manufacturing	8.0
PAYTON TECHNOLOGY CORP	FTN VALLEY	Other Electronic Component Manufacturing	6.4
FINELINE CIRCUITS & TECHNOLOGY INC.	BREA	Computer Storage Device Manufacturing	5.6
NEUTRONIC STAMPING AND PLATING	FTN VALLEY	Electronic Connector Manufacturing	5.6
PRINTRONIX, INC.	IRVINE	Electronic Computer Manufacturing	4.0
ALLTEK CIRCUIT INC.	IRVINE	Computer Storage Device Manufacturing	4.0
CIRCUIT TECH INC.	ORANGE		4.0
GOMTECH ELECTRONICS, INC.	ORANGE		4.0
ROADRUNNER CIRCUIT TECHNOLOGIES, INC.	BREA	Bare Printed Circuit Board Manufacturing	4.0
UNITED CIRCUIT TECHNOLOGY INC.	FTN VALLEY		4.0
BASIC ELECTRONICS INC.	GARDEN GROVE		4.0
LOGI GRAPHICS INC.	HUNTINGTN BCH		4.0
ROCK INDUSTRIES, INC.	HUNTINGTN BCH		4.0
SOLDERMASK, INC.	HUNTINGTN BCH		4.0
SPEEDY CIRCUITS, FACILITY #2	HUNTINGTN BCH		4.0
CIRCUIT ACCESS	ORANGE		4.0
SUPERIOR PROCESSING	PLACENTIA		4.0

PERFECT LAMINATION INC.	TUSTIN		4.0
WESCO SERVICES	TUSTIN		4.0
SEMICOA SEMICONDUCTORS	COSTA MESA	Semiconductor and Related Device Manufacturing	4.0
STATEK CORPORATION #2	ORANGE	Printed Circuit Assembly (Electronic Assembly) Mfg	4.0
SI TECHNOLOGIES	TUSTIN	Other Electronic Component Manufacturing	4.0
TAYCO ENGINEERING INC.	CYPRESS	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling	4.0
NEWPORT CORPORATION	IRVINE	Analytical Laboratory Instrument Manufacturing	4.0
MEDIA MASTERING SERVICES, LLC	BREA	Prerecorded Compact Disc (except Software), Tape, and Record Reproducing	4.0
CD VIDEO INC.	GARDEN GROVE		4.0
SINGULUS TECHNOLOGIES	IRVINE	Magnetic and Optical Recording Media Manufacturing	4.0
TOTAL PERMITTED DISCHARGE – COMPUTERS AND ELECTRONICS			1,381 AFY

GRAND TOTAL – ALL FOUR SECTORS

4,819 AFY

**Metropolitan Water District of Southern California
Water Conservation Guidelines
Industrial Process Improvement Program**

What is the Industrial Process Improvement Program?

The Industrial Process Improvement Program (IPI) offers financial assistance to local industries to encourage investment in water-saving process improvements. The Program is open to all public and private commercial and industrial users within Metropolitan's service area. Financial assistance is provided for documented water savings derived from projects implemented under the program that meet the minimum qualifying criteria.

What is the Industrial Process Improvement Program?

The Industrial Process Improvement Program (IPI) offers financial assistance to local industries to encourage investment in water-saving process improvements. The Program is open to all public and private commercial and industrial users within Metropolitan's service area. Financial assistance is provided for documented water savings derived from projects implemented under the program that meet the minimum qualifying criteria.

What are the minimum qualifying criteria?

- Proposed improvements must be new. Projects that have commenced construction or that have purchased, leased, or installed equipment prior to agreement execution are excluded from participation in the program.
- Project must be implemented within Metropolitan's service area (a map is available upon request)
- Proposed process improvements must be functional for at least five (5) years.
- Project costs to achieve water savings must have a **minimum** two-year simple pay back to qualify.

How much is the incentive?

Based on project cost and water savings, Metropolitan will pay the **lesser of**:

- A) \$2.36 per 1,000 gallons of actual water saved for a one (1) year monitoring period; or
- B) Fifty (50) percent of the project's water-related process improvement costs; or
- C) Buy down of project cost to reduce the simple pay-back period to two (2) years (project cost minus twice the estimated annual water and wastewater savings).

Financial incentives are subject to availability of Program funds as authorized by Metropolitan's Board of Directors.

What type of improvements qualify?

Typical process improvements that qualify include:

- Installing equipment that will capture, treat and reuse water that would otherwise be discharged to the sewer.
- Replacing existing process equipment with more efficient equipment resulting in reduced water demand.

How will financial assistance be provided?

If a proposed project is selected for program participation, an agreement would be executed indicating the amount of financial assistance that would be provided for the project. Payment would be made in two steps. The first payment is made upon verification of equipment installation and startup/operation of the project. Final payment would be made after a 12-month monitoring period of water saved.

Here's how to apply:

Complete, sign and return the application along with supporting documentation to:

The Metropolitan Water District
of Southern California
Regional Supply Unit - IPI Program, US 9-302
P.O. Box 54153
Los Angeles, CA 90054-0153

The application identifies specific information that is required to determine eligibility including a comprehensive flow diagram. Please allow six to eight (6-8) weeks for project review and determination of eligibility. Projects with major modifications or very complex improvements may require additional review time.

APPENDIX F

PROGRAM COST	Labor Cost	Incentive	TOTAL
MWDOC Program Administration	\$119,852		\$119,852
OCSD Technical Support	\$104,832		\$104,832
Outreach and marketing	\$55,120		\$55,120
FOCUSED SURVEYS	\$80,136		\$80,136
COMPEHENSIVE SURVEYS	\$57,240		\$57,240
Follow-up and implementation support	\$57,240		\$57,240
CUSTOMER INCENTIVES		\$344,589	\$344,589
TOTAL	\$474,420	\$344,589	\$819,009
Cost per acre foot			\$475

Cost Shares			
	<u>Per AF</u>	<u>Total Program</u>	<u>Percent Distrib.</u>
MWD	\$110/\$154	\$189,524	23.1%
DWR	\$235	\$404,801	49.4%
MWDOC prog mgt	\$70	\$119,852	14.6%
Sanitation technical	\$61	\$104,832	12.8%
TOTAL	\$475	\$819,009	100.0%

Agency Participant Services		
	MWDOC	OC Sanitation Districts
Base hours per year	520	416
Blended base rate for agency employees	\$36.59	\$40.00
Multiplier	2.1	2.1
Total base cost per year	\$39,951	\$34,944
Three-year cost	\$119,852	\$104,832

APPENDIX F

TOTAL AF SAVINGS POTENTIAL FROM THE 50 COMPANIES BEING SURVEYED		
Total AF (7 yrs)	Annual AF	Sector
699	99.9	Food Processing
4103	586.1	Textiles
488	69.8	Fabricated Metals
1871	267.3	Electronics
7161	1023.0	

TOTAL AF SAVINGS ACTUALLY RESULTING FROM IMPLEMENTATION OF RECOMMENDATIONS IN THE FOCUSED SURVEYS AND COMPEHENSIVE SURVEYS		
Total AF (7 yrs)	Annual AF	Sector
86	12.3	Food Processing
1354	193.4	Textiles
44	6.3	Fabricated Metals
239	34.1	Electronics
1723	246.1	

PROGRAM COST DETAIL

Total number of candidate companies within the 4 sectors	106
Percentage of companies that will respond to a survey offer	47%
Total number of companies targeted for and receiving FOCUSED SURVEYS	50
Percentage of FOCUSED SURVEYS revealing viable process water savings at a company WILLING to proceed with a COMPREHENSIVE SURVEY	25%
Percentage of FOCUSED SURVEYS revealing viable process water savings but at a company NOT WILLING to proceed with a COMPREHENSIVE SURVEY	75%
Percentage of companies receiving a FOCUSED SURVEY that do NOT receive a COMPREHENSIVE SURVEY but implement one or more recommendations from the FOCUSED SURVEY	30%
Percentage of savings realized from partial implementation of measures recommended in a FOCUSED SURVEY (without a COMPEHENSIVE SURVEY)	25%
Total number of targeted companies receiving COMPREHENSIVE SURVEYS	12
Percentage of companies receiving COMPREHENSIVE SURVEYS that implement the some or all of the survey recommendations	66%
Percentage of recommendations that are implemented by the companies implementing some or all of the COMPREHENSIVE SURVEY recommendations	50%
Incentive payment to end-user implementing measures (\$/AF)	\$280

Appendix G

Joseph M. Berg
28482 Casanal
Mission Viejo, CA 92692
949-916-2147
jmberg@cox.net

KEY QUALIFICATIONS:

- Proven ability to develop multi-jurisdictional programs and funding partnerships
- Extensive knowledge of all sectors of urban water planning and protection
- Strong public speaking experience to local, regional, state and international governments
- Demonstrated ability to inspire, motivate, and lead within a team environment
- Established project development and management experience
- Window 2000, Microsoft Office, Microsoft Internet Explorer, Netscape proficient

EXPERIENCE:

1/98 – present Municipal Water District of Orange County, Fountain Valley, CA

Title: **Water Use Efficiency Programs Manager**

Phone: 714-593-5008

- Developed and planned demand side management programs valued at more than \$6 million annually for the Orange County region
- Provided team leadership for 2000 Regional Urban Water Management Plan of Orange County
- Planned and directed all hiring and staffing for the agency and consultants providing professional services
- Demonstrated county and state leadership in advancing water management, conservation, and environmental policy
- Submitted reports to meet state and federal compliance
- Prepared and maintained departmental budget
- Identify market opportunities for development of expanded programs

3/95 – 1/98

Municipal Water District of Orange County, Fountain Valley, CA

Title: **Water Use Efficiency Programs Supervisor**

- Expanded grant proposal funding to \$4 million annually
- Forged new partnerships with local, regional and state elected officials
- Presented water conservation and environmental concerns to all branches of State government, advocating a collaborative approach to policy design, program assessment and implementation

7/93 – 3/95

Municipal Water District of Orange County, Fountain Valley, CA

Title: **Conservation Coordinator**

- Acquired \$3 million in private and public funding grants to off-set public cost of water program implementation

- Produced 1995 Regional Urban Water Management Plan for Orange County including demand estimate, identification of water supply options, conservation activities, and water shortage contingency plan as required by State regulation

11/91 – 7/93

Municipal Water District of Orange County, Fountain Valley, CA
 Title: **Public Affairs Assistant**

- Acquired \$2 million in private and public funding grants to off-set public cost of water program implementation
- Developed and implemented public and retail agency water conservation programs
- Conducted public relation campaign designed to promote awareness of residential conservation and environmental programs

2/91 – 11/91

San Diego County Water Authority, San Diego, CA
 Title: **Water Conservation Intern**

- Gained general knowledge of broad based water programs
- Developed educational program to inform customer about conservation strategies and opportunities
- Planned and managed quality control of ultra low-flush toilet program

EDUCATION:

9/88 – 6/91

San Diego State University, San Diego, CA
 Major: Bachelor of Arts, Resource and Environmental Geography

9/85 – 6/88

Saddleback Community College, Mission Viejo, CA
 Major: Associate of Arts, General Education

ACTIVITIES:

May 2000

Guest Speaker, Balleric Island, Spain – Environmental Water Confr.

- Topic - Innovative Partnerships for Water Conservation
- 2000
 Convener, California Urban Water Conservation Council
- Developed a three year strategic plan

1/99 – present

Vice Chair, Santa Margarita Water Distract Community Advisory Board

- Initiated more consumer involvement in advisory board

1/98 – 4/04

Board Member, Norte Vista Maintenance Corporation

- Homeowner conflict resolution

Excellent References Available Upon Request

- 11661 Rosemary Avenue Fountain Valley, California 92708

SUMMARY OF QUALIFICATIONS

Water Use Efficiency: Seven years experience managing water use efficiency programs for Municipal Water District of Orange County's member agencies..... Member on several committees for the California Urban Water Conservation Council.... Knowledge of the Memorandum of Understanding's Best Management Practices for Urban Water Conservation.... Certified by the American Water Works Association in Water Conservation..... Cal Poly Irrigation Training and Research Center Certified Landscape Irrigation Auditor

Management: More than 10 years management experience.... Experience in customer service relations... Experience in employee hiring, performance evaluation, training, and scheduling... Budget monitoring/control... Inventory control... Purchasing... Equipment acquisition... Managed from 120 to 150 staff for more than 10 years... Merchandising and stock ordering... Assistant Manager and Grocery Manager of a major Southern California retail stores which were consistently among the *Top Ten in Profit*.

Personal Strengths: Professional, reliable, and a strong work ethic... Good interpersonal skills... Skilled in trouble-shooting and in handling difficult customer relations... Excellent oral communication skills... Successful record of client and co-worker relationships... Self-motivated, multi-task oriented, and an intensive problem-solver who sees each project/task to completion.

EDUCATION AND TRAINING

University of California Fullerton
Fullerton, California

Masters of Arts, Geography,
course work complete, thesis in
process.

University of California Fullerton
Fullerton, California

Bachelor of Arts, Geography,
1994. Emphasis: **Environmental
Analysis.**

Orange Coast College
Costa Mesa, California

Associate of Arts,
Business Administration, 1991

Course work included: Environmental Assessment Seminar, 1995; Geographical Information Services, 1994 and 1996; Hydrology, 1994; Cartography, 1993; Principles of Urban Water, 1993; Geomorphology, 1993; Urban Planning Principles, 1995; Urban Planning Methods.

Certificates: American Water Works Association, California – Nevada Section Water Conservation Practitioner Level 1. California Polytechnic State University Irrigation Training and Research Center Certified Landscape Irrigation Auditor

Computer: Microsoft Word and Access; Atlas GIS; Microsoft Excel; ArcView; Arc/Info.

Seminars: Conflict Management, 1993; Management Through Understanding Behavior, 1991; Leadership Seminar, 1990.

PROFESSIONAL EXPERIENCE

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY, Fountain Valley, California

Water Use Efficiency Specialist

1997 - Present

Project Manager for the Commercial, Institutional, and Industrial Water Audit Program and the Protector Del Agua Landscape Training class. Project Manager for the Residential Water Audit Program, conducting over 3,000 audits a year. Assist in managing Municipal Water District of Orange County's (MWDOC) Landscape Certification Program. Project manager for MWDOC's Ultra-Low-Flush Replacement Toilet Program. Assisted in staffing MWDOC's public education efforts at the annual Spring and Garden Show in Costa Mesa.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY, Fountain Valley, California

Water Conservation Assistant

1994 - 1997

Served as Assistant to MWDOC's Water Use Efficiency Program Manager, Joe Berg. Assisted with the Ultra-Low Flush Toilet Program in 1995 and 1996, with implementation of the 1997 program. Created the county's public parks landscape audit data base. Implemented the Protector del Agua Landscape Training Course.

CALIFORNIA STATE UNIVERSITY, FULLERTON, Fullerton, California

Graduate Assistant

1995 - 1996

Graduate assistant in the Geography Department for two full-time Professors. Duties include: assisting in Arcview and Arc/Info classes, classroom organization, tutoring students, and proxy exams.

VONS, Long Beach, California

Clerk

1991 - 1994

Duties include customer service, stocking, inventory control, pricing/price integrity and training of new clerks.

ALPHA BETA, La Habra, California

Manager/Assistant Manager

1985 - 1991

Managerial authority for 80 to 150 employees and responsibility for stores with \$230,000 to \$400,000 weekly sales. Responsibilities include: customer service, employee hiring, performance evaluation and promotion, employee scheduling, job planning, payroll, inventory control, net profit control and shrink control. Also served as Morale Coordinator and was responsible for profit and loss statements, other financial reporting requirements, equipment acquisition, and employee training.

References

Will be furnished upon request.

Appendix H



**Surfrider
Foundation.**

January 10, 2005

California Department of Water Resources
Office of Water Use Efficiency
PO Box 942836
Sacramento, CA 94236-0001

Attn: Debra Gonzalez

RE: Proposition 50 MWDOC Proposal - Industrial Process Water Use Reduction Program

To Whom It May Concern:

I am writing on behalf of the Surfrider Foundation to support the application of the Municipal Water District of Orange County (MWDOC) in their application for Proposition 50 funding – Industrial Process Water Use Reduction Program.

The Surfrider Foundation is a non-profit environmental organization dedicated to the protection and enjoyment of the world's oceans, waves and beaches for all people, through conservation, activism, research and education. Represented by over 40,000 members and 60 local chapters in the U.S., the Surfrider Foundation also has affiliations in Australia, Japan, France, and Brazil.

We feel very strongly that water conservation in general, and MWDOC's proposal in specific, will have direct benefits in reducing Southern California's reliance on water imports. Equally important to the Surfrider Foundation and our members, MWDOC's proposal will result in significant reductions of wastewater flows to local treatment facilities – and consequently indirectly reduce ocean discharges.

Please accept this recommendation on behalf of the Surfrider Foundation and our membership. We look forward to the successful implementation of MWDOC's Industrial Process Water Use Reduction Proposal.

Sincerely,
Signature on file

Joseph Geever, JD
Surfrider Foundation/Southern California Regional Manager
PO Box 6010
San Clemente, CA 92674-6010

Appendix C

Applicant: Municipal Water District of Orange County

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Section A projects must complete Life of investment, column VII and Capital Recovery Factor Column VIII. Do not use 0.

Table C-1: Project Costs (Budget) in Dollars)

	Category (I)	Project Costs \$ (II)	Contingency % (ex. 5 or 10) (III)	Project Cost + Contingency \$ (IV)	Applicant Share - including MWD and sanitation districts \$ (V)	State Share Grant \$ (VI)	Life of investment (years) (VII)	Capital Recovery Factor (VIII)	Annualized Costs \$ (IX)
	Administration ¹								
	Salaries, wages	\$57,080	0	\$57,080	\$57,080	\$0	7	0.1791	\$10,223
	Fringe benefits	\$62,772	0	\$62,772	\$62,772	\$0	7	0.1791	\$11,242
	Supplies	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Equipment	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Consulting services	\$192,496	0	\$192,496	\$0	\$192,496	7	0.1791	\$34,476
	Travel	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Other - Staff contribution by sanitation districts	\$104,832	0	\$104,832	\$104,832	\$0	0	0.0000	\$0
(a)	Total Administration Costs	\$417,180	0	\$417,180	\$224,684	\$192,496	0	0.0000	\$55,942
(b)	Planning/Design/Engineering	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(c)	Equipment Purchases/Rentals/Rebates/Vouchers	\$0	0	\$0	\$0	\$0	10	0.0000	\$0
(d)	Materials/Installation/Implementation	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(e)	Implementation Verification	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(f)	Project Legal/License Fees	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(g)	Structures	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(h)	Land Purchase/Easement	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(i)	Environmental Compliance/Mitigation/Enhancement	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(j)	Construction	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(k)	Other (Specify)-Customer Incentives	\$344,589	0	\$344,589	\$189,524	\$155,065	7	0.1791	\$61,716
(l)	Monitoring and Assessment	\$28,620	0	\$28,620	\$0	\$28,620	7	0.1791	\$5,126
(m)	Report Preparation	\$28,620	0	\$28,620	\$0	\$28,620	7	0.1791	\$5,126
(n)	TOTAL	\$819,009	0	\$819,009	\$414,208	\$404,801	0	0.0000	\$127,909
(o)	Cost Share -Percentage				51	49			

1- excludes administration O&M.

Applicant:

Municipal Water District for Orange County

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Table C-2: Annual Operations and Maintenance Costs

Operations (1) (I)	Maintenance (II)	Other (III)	Total (IV) (I + II + III)
\$0	\$0	\$0	\$0

(1) Include annual O & M administration costs here.

Table C-3: Total Annual Project Costs

Annual Project Costs (1) (I)	Annual O&M Costs (2) (II)	Total Annual Project Costs (III) (I + II)
\$127,909	\$0	\$127,909

(1) From Table C-1, row (n) column (IX)

(2) From Table C-2, column (IV)

Table C- 4: Capital Recovery Table (1)

Life of Project (in years)	Capital Recovery Factor
1	1.0600
2	0.5454
3	0.3741
4	0.2886
5	0.2374
6	0.2034
7	0.1791
8	0.1610
9	0.1470
10	0.1359
11	0.1268
12	0.1193
13	0.1130
14	0.1076
15	0.1030
16	0.0990
17	0.0954
18	0.0924
19	0.0896
20	0.0872
21	0.0850
22	0.0830
23	0.0813
24	0.0797
25	0.0782
26	0.0769
27	0.0757
28	0.0746
29	0.0736
30	0.0726
31	0.0718
32	0.0710
33	0.0703
34	0.0696
35	0.0690
36	0.0684
37	0.0679
38	0.0674
39	0.0669
40	0.0665
41	0.0661
42	0.0657
43	0.0653
44	0.0650
45	0.0647
46	0.0644
47	0.0641
48	0.0639
49	0.0637
50	0.0634

(1) Based on 6% discount rate.

Applicant: **Municipal Water District of Orange County**

THE TABLES ARE FORMATTED WITH FORMULAS: **FILL IN THE SHADED AREAS ONLY**

Table C-5 Project Annual Physical Benefits (Quantitative and Qualitative Description of Benefits)

	Qualitative Description - Required of all applicants ¹				Quantitative Benefits - where data are available ²
	Description of physical benefits (in-stream flow and timing, water quantity and water quality) for:	Time pattern and Location of Benefit	Project Life: Duration of Benefits	State Why Project Bay Delta benefit is Direct ³ Indirect ⁴ or Both	Quantified Benefits (in-stream flow and timing, water quantity and water quality)
Bay Delta	Water savings targeted through implementation of this program are projected at 1,723 acre-feet. A range of 10 to 40 percent of this saved water originates from the State Water Project, depending on both the annual and seasonal mix of imported water delivered into the region. The remaining saved water originates from the Colorado River and local groundwater.	Benefits are accrued through the year at a relatively constant rate. Location of benefits (10 to 40 percent): State Water Project	7 years	Water withdrawn from the State Water Project will be reduced as a consequence of the project. Dependency upon the SWP and Bay-Delta system would be reduced.	Dependency upon the State Water Project would be reduced by an amount equal to between 172 (10%) to 689 (40%) acre-feet of water, depending upon the season and hydrologic conditions affecting the local groundwater basin (average approximately 34%, or 586 acre=). This dependency reduction would occur over a 7-year period.
Local	The majority of saved water will translate into reduced wastewater flows into the Orange County Sanitation District treatment system. The majority of these wastewater flows are treated and discharged into the Pacific Ocean while approximately 7,500 acre feet are treated to reclaimed water standards and reused locally for irrigation purposes. By 2007, an additional 72,000 acre feet will be diverted before ocean discharge and treated for groundwater recharge purposes. With the Orange County Sanitation District as a project partner industrial process water use efficiency measures implemented will likely improve discharge water quality for participating industries therefore improving the quality of water discharged into OCSDs collection and treatment system therefore improving source water for both reclaimed and groundwater recharge projects.	Benefits are accrued through the year at a relatively constant rate. Location of benefits (10 to 40 percent): Orange County groundwater recharge.	7 years	Not applicable.	A demand reduction upon local groundwater supplies would occur ranging between 1,034 acre feet and 1,551 acre-feet of water. This dependency reduction would occur over a 7-year period.

¹ The qualitative benefits should be provided in a narrative description. Use additional sheet.

² Direct benefits are project outcomes that contribute to a CALFED objective within the Bay-Delta system during the life of the project.

³ Indirect benefits are project outcomes that help to reduce dependency on the Bay-Delta system. Indirect benefits may be realized over time.

⁴ The project benefits that can be quantified (i.e. volume of water saved or mass of constituents reduced) should be provided.

Applicant:

Municipal Water District of Orange County

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Table C-6 Project Annual Local Monetary Benefits

ANNUAL LOCAL BENEFITS	ANNUAL QUANTITY (AF)	UNIT OF MEASUREMENT (\$/AF)	ANNUAL MONETARY BENEFITS
(a) Avoided Water Supply Costs (Current or Future Source)	246.1	312.81	\$76,983
(b) Avoided Energy Costs	0		\$0
(c) Avoided Waste Water Treatment Costs	0		\$0
(d) Avoided Labor Costs	0		\$0
(e) Other (describe)	0		\$0
(f) Total [(a) + (b) + (c) + (d) + (e)]			\$76,983

Table C-7 Project Local Monetary Benefits and Project Costs

(a) Total Annual Monetary Benefits [(Table C-6, row (f))	\$76,983
(b) Total Annual Project Costs (Table C-3, column III)	\$127,909

Table C-8 Applicant's Cost Share and Description

Applicant's cost share %: (from Table C-1, row o, column V)	51
Describe how the cost share (based on relative balance between Bay-Delta and Local Benefits) is derived. (See Section A-7 for description.) The cost share proposed is as follows: State - 49.4%; Local - 50.6%. Based upon historical averages, approximately 34% of the water savings benefits accrue to the State Water Project and the Bay-Delta	
Provide Description in a narrative form.	

