



2004 Water Use Efficiency Proposal Solicitation Package

# Investigation of Regulated Deficit Irrigation

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*Agricultural Water Management Council*

Submitted to:  
California Department of Water Resources  
Office of Water Use Efficiency

January 11, 2005



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# Project Information Form

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Applying for:

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

- Urban  Agricultural
- (a) implementation of Urban Best Management Practice, # \_\_\_\_\_
- (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: \_\_\_\_\_
- (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

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

3. Principal applicant (Organization or affiliation):

Agricultural Water Management Council

4. Project Title:

Investigation of Regulated Deficit Irrigation

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

Name, Title	Mike Wade, Executive Director
Mailing Address	Agricultural Water Management Council
	717 K Street, Ste. 511
	Sacramento, CA 95814
Telephone	916-441-7868
Fax	
E-mail	mwade@agwatercouncil.org

6. Contact person (if different):

Name, Title  
Mailing Address  
Telephone  
Fax  
E-mail

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

\$90,675

8. Applicant funds pledged (dollar amount):

\$0

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

\$90,675

10. Percent of State share requested (%)  
*(from Table C-1)* 100%
11. Percent of local share as match (%)  
*(from Table C-1)* 0%
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
13. Is your project required by regulation, law or contract?  
If no, your project is eligible.  (a) yes  
If yes, your project may be eligible only if there will be accelerated implementation to fulfill a future requirement and is not currently required.  (b) no  
*Provide a description of the regulation, law or contract and an explanation of why the project is not currently required.*
14. Duration of project (month/year to month/year): 1/06 – 6/07
15. State Assembly District where the project is to be conducted: Statewide
16. State Senate District where the project is to be conducted: Statewide
17. Congressional district(s) where the project is to be conducted: Statewide
18. County where the project is to be conducted: Statewide
19. Location of project (longitude and latitude) Statewide
20. How many service connections in your service area (urban)? N/A
21. How many acre-feet of water per year does your agency serve? N/A
22. Type of applicant (select one):  
 (a) City  (h) University, College  
 (b) County  (i) State Agency  
 (c) City and County  (j) Federal Agency  
 (d) Joint Powers Authority  (k) Other  
 (e) Public Water District  (i) Investor-Owned Utility  
 (f) Tribe  (ii) Incorporated Mutual Water Co.  
 (g) Non Profit Organization  (iii) Specify \_\_\_\_\_
23. Is applicant a disadvantaged community? If 'yes' include annual median household income.  (a) yes, \_\_\_\_\_ median household income  
*(Provide supporting documentation.)*  (b) no

# Signature Page

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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

Executive Director  
Michael Wade  
\_\_\_\_\_  
Name and title

1-11-05  
\_\_\_\_\_  
Date

# Statement of Work: Section 1, Relevance and Importance

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## Project Goals and Objectives

The goal of this project is to explore and identify the water use efficiency benefits of Regulated Deficit Irrigation (RDI) while taking into consideration the effects to production associated with the practice by:

- Assessing how RDI is currently practiced in California
- Investigating the potential for expanded use of RDI on commodities where it is now practiced
- Evaluating the potential for extending the practice to commodities where it is not commonly applied

Whether RDI is implemented as a cultural practice with water conservation benefits or for the primary purpose of water conservation, the goal of this study is to synthesize information from various sources to assess the incentives and limitations for growers to participate in RDI on a number of key crops and to project the potential water savings that may accrue to expanded use of this practice.

### ***Local Issues***

This study would involve interviews and data collection on current RDI activities throughout California. Project activity would be directed to areas of the state where cropping patterns or irrigation practices suggest that RDI might be most beneficial. The appropriateness of RDI in different areas is currently driven by agronomic practices rather than by water supply considerations.

### ***Regional Issues***

The regional benefits of RDI are likely to vary with cropping and irrigation practices because its implementation is expected to be concentrated in areas having agronomic conditions conducive to RDI.

### ***Bay-Delta Issues***

The current and expanded use of RDI has the potential to generate water savings that benefit the Bay-Delta. These benefits may be generated directly in areas tributary to the Bay-Delta or indirectly by conserving water in areas that rely on exports from the Delta as a component of their water supply

### ***State Issues***

The State of California needs to know which water use efficiency actions are now being applied in the field to guide future investments to improve on-farm efficiencies. This information can be used in the state's planning efforts and in the design of technical assistance and incentive programs.

### ***Federal Issues***

Federal agencies need to know which water use efficiency actions are being used in the field to guide future investments to improve on-farm efficiencies. This information can be used in federal planning efforts and in the design of technical assistance and incentive programs.

### ***Consistency with Local or Regional Water Management Plans***

Research into the actual and potential implementation of RDI may aid in refining water conservation estimates presented in the State Water Plan and in regional planning documents.

### ***Implementation of Water Demand Management Activities Identified in Urban or Agricultural Water Management Plans***

RDI has not been widely recognized as a water conservation measure in water management plans because these plans are prepared by irrigation water suppliers and emphasize conservation measures (such as canal lining or system automation) that can be implemented by suppliers. By contrast, RDI is an on-farm conservation practice. Therefore, while successful operation of RDI requires good control of the water supply, the initiative for implementing RDI is likely to emerge from growers and not from water suppliers.

Nevertheless, in their water management plans, irrigation water suppliers are required to address how they support improvements in on-farm water use efficiency. The water suppliers' role is to provide a level of service that enables growers to implement on-farm water use efficiency improvements such as RDI.

The high level of control of the timing and volume of water applications needed for successful implementation of RDI requires either that water suppliers respond to the flexible delivery requirements of RDI or that growers develop on-farm facilities (surface water storage or groundwater supplies) that give them the necessary degree of control in their water applications. Therefore, water users wishing to implement RDI will need to consider whether they have access to sufficiently flexible water supplies. Water service flexibility is an item addressed in the water management plans. For example, canal automation is an AB 3616 Efficient Water Management Practice and a federal Best Management Practice.

### ***Importance of Project Implementation on Current Water Management Activities or Initiation of New Activities***

One of the objectives of this project is to identify the factors that prevent growers from instituting RDI technology as well as the factors that encourage growers to adopt RDI.

Awareness of the incentives and barriers to the implementation of RDI can allow investments in local and state programs to be targeted to the growers' needs.

## **Statement of Work: Section 2, Technical/Scientific Merit, Feasibility**

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The key objectives of the RDI study are to assess how RDI is understood and implemented today and to project how RDI may be implemented in the future. Estimates of current and future water savings that can be attributed to RDI will be used to assess the volume of water now conserved by RDI and the potential for further conservation.

The assessment of RDI as it is implemented today will focus on determining the following parameters.

### **Feasibility and Technical Adequacy of the Approach**

#### ***Methodology***

##### **Task List and Schedule**

A description of project tasks is presented below. Figure 1 (found at the end of this section) is a project schedule.

#### ***Task 1 Define Regulated Deficit Irrigation***

The Agricultural Water Management Council (AWMC) will review published literature on RDI to preliminarily identify crops with proven benefits from RDI and specific production results from implementing the technology. The AWMC will develop a definition of RDI within the project team as a basis for identifying RDI occurring in the field. The definition will establish a water use baseline that can be used to identify when growers intentionally depart from this standard during the practice of RDI.

#### ***Activities and deliverables***

- Documentation of literature review findings
- Working definition of Regulated Deficit Irrigation
- Written narrative discussing the characteristics of RDI

#### ***Task 2 Identify California-Grown Commodities Appropriate for RDI***

AWMC will interview representatives of commodity groups and UC Cooperative Extension staff to identify commodities likely to benefit from RDI as a cultural practice. The interviews will also generate estimates of the acreage currently under RDI and the estimated potential expansion for RDI for each commodity and region. Six to eight interviews are included in the budget for this task.

The interview will include the following items:

- List of commodities appropriate for RDI with a brief description explaining why RDI was considered appropriate for the commodity
- List of commodities inappropriate for RDI with a brief description explaining why RDI was considered inappropriate for the commodity
- Estimated acreage currently under RDI technology for each crop
- Estimated acreage expected to be under RDI technology for each crop in 5 years and 10 years (assuming there is no organized effort to promote the technology among growers)
- Description of factors limiting the expansion of RDI among growers

***Activities and deliverables***

- Develop interview format and documentation procedure
- Schedule and conduct interviews
- Document and analyze completed interviews
- Technical memorandum summarizing survey results and findings

***Task 3 Develop a List of Top Commodities***

AWMC will select six commodities on which to focus its efforts. This will not be an exhaustive list, but an attempt to prioritize where RDI could have the greatest impact in terms of meeting CALFED and state objectives where there is documented information on the effects of RDI and commodity board participation.

***Activities and deliverables***

- List of six commodities
- Technical memorandum describing why the six commodities were selected

***Task 4 Interview Growers on Current RDI Practices***

AWMC will interview representatives of the prioritized list of commodity groups, regional UC Cooperative Extension staff, and growers on their current RDI routine and irrigation scheduling and management needs. These interviews will be aimed at ascertaining growers' objectives in adopting RDI and to identify the specific benefits and costs growers have observed from implementing the technique. This will include a discussion of the infrastructure, equipment, and labor needs required for RDI.

Information collected during these interviews will help identify the objectives and benefits of RDI as well as the incentives for grower participation when promoting efficient water management practices. AWMC will identify the acreage that is currently under RDI and the growers' plans for future expansion of the practice. Sixteen to twenty interviews are budgeted for this task.

The interview will address the following items:

- Description of RDI routine and documentation procedure
- Identification of objectives for participating in RDI
- Description of management needs (equipment, labor, etc.)
- Description of observed costs
- Description of observed benefits
- Current acreage under RDI technology
- Acreage expected to be under RDI technology in 5 years and 10 years
- Additional water savings that may result from expansion of RDI
- Factors limiting the expansion of RDI

***Activities and deliverables***

- Develop interview format and documentation procedure
- Schedule and conduct interviews
- Document and analyze completed interviews
- Produce technical memorandum summarizing interview results and findings

***Task 5 Survey Irrigation Water Purveyors for Ability to Support Grower Participation in RDI Technology***

RDI requires a water supply infrastructure that provides water on an on-call basis. Irrigation scheduling cannot be planned weeks or days in advance because of the nature of managing irrigation at the edge of plant stress. Agricultural water suppliers generally do not have systems that are designed to meet the requirements of RDI.

***Activities and deliverables***

- Define types of delivery systems able to meet the water supply needs of growers implementing RDI

- Survey agricultural water suppliers to determine if irrigation system flexibility meets RDI requirements
- Document and report findings

#### ***Task 6 Final Report and Workshop***

AWMC will produce a final report presenting the project findings and developing conclusions and recommendations based on these findings. This report will be presented in a workshop that will provide an opportunity to explain the study's findings, address questions from workshop participants, and help formulate further steps for investigation.

#### ***Activities and deliverables***

- Prepare draft and final project report
- Conduct project workshop for members of the AWMC and other interested parties

### **Environmental Documentation**

No environmental documentation will be required for this study.

## **Statement of Work: Section 3, Monitoring and Assessment**

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### **Description of Pre-Project Conditions and Data Baselines**

To a large extent, the RDI project is designed to develop baseline data on the current use of RDI and on the volume of water now conserved by this practice.

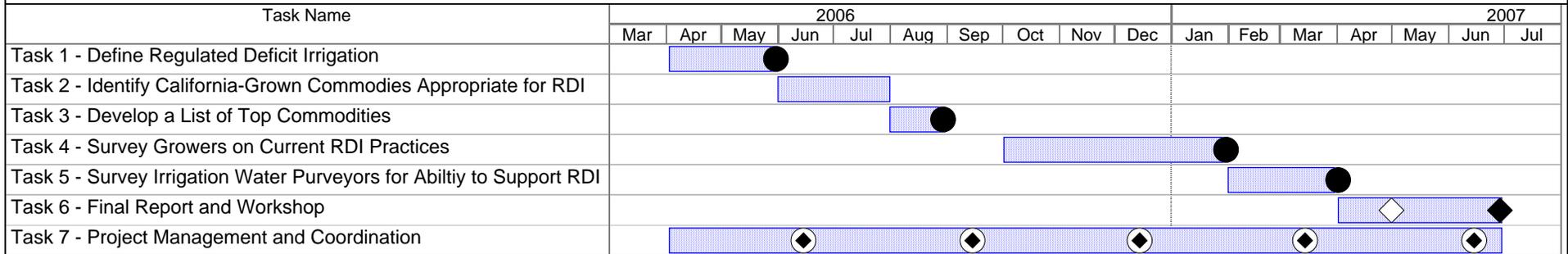
### **Explanation of Monitoring Methodologies and Project Monitoring Data Collected to Assess Project Results**

The RDI project will devote a large proportion of its effort to assessing current uses of RDI. Because this project is not an implementation effort, there will be no opportunity to compare pre-project with post-project conditions. However, the project will represent the most comprehensive assessment of RDI to date and, therefore, will provide a basis for comparison with other estimates of current RDI implementation and as a baseline for comparison with future assessments of RDI implementation. AWMC will make project results and data collection methodologies available to a panel of experts for peer review to ensure project credibility.

### ***Evaluation of Success in Relation to Project Goals and Objectives***

Assessment of this project against goals and objectives will be based on the project's performance in collecting and disseminating information regarding RDI. In particular,

**Figure 1  
Regulated Deficit Irrigation Study  
Schedule**



Task	■	Technical Memorandum	●	Final Report	◆
Quarterly Progress Reports	◆	Draft Report	◇		

project success will be based on comparison of the targeted number of interviews and surveys to be conducted with the actual number of interviews and surveys performed. The most important “yardstick” of project success will be the degree to which the project advances an understanding of how RDI is now applied in production agriculture and in developing a coherent picture of the factors likely to govern future implementation of RDI.

## **Consideration of External Factors**

Research conducted for this project is unlikely to be affected by external factors. However, one of the objectives of the study will be to identify external factors such as changes in cropping programs, market conditions, water quality regulations, and access to flexible water deliveries that may influence the adoption of RDI.

## **Information About How Data and Other Information Will Be Handled, Stored, Reported and Made Accessible to DWR and Others**

AWMC staff will produce a final report presenting the project’s findings and developing conclusions and recommendations based on these findings. This report will be presented in a workshop which will provide an opportunity to explain the study’s findings, to address questions from workshop participants and to help formulate further steps for investigation. Research findings will be sent to the Office of Water Use Efficiency (Department of Water Resources), Water Conservation Office (U.S. Bureau of Reclamation), and Water Use Efficiency Program (California Bay-Delta Authority).

## **Estimated Costs Associated with the Implementation of the Monitoring and Evaluation Plan**

Because monitoring and evaluation are intrinsic components of this study and will not be continued after completion of the study, no funds are allocated specifically to implementation of the monitoring and evaluation plan.

## **Qualifications of the Applicants and Cooperators**

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### **Resume of Project Manager**

Mike Wade, Executive Director of the Agricultural Water Management Council will be the Project Manager. He will supervise project implementation and direct his staff and external cooperators; monitor expenditures; and ensure that DWR requirements for project monitoring and reporting are fulfilled. Mike’s resume is included in Appendix A at the end of this application.

## **External Cooperators**

A qualified water resources consultant will support the AWMC in implementing the Regulated Deficit Irrigation Study. This consultant will have a basic understanding of RDI and of on-farm and district-level irrigation operations. The consultant will also have a demonstrated capacity to complete grant-funded projects in a timely manner and with the available budget.

Other external cooperators will include participating staff from commodity groups, external experts who will be consulted to review progress and the membership of the Agricultural Water Management Council.

## **Previous Water Use Efficiency Grant Projects**

The AWMC has not received previous funding from the WUE grant program.

## **Disadvantaged Community Status**

The disadvantaged community status provisions are not applicable to this grant application.

## **Outreach, Community Involvement, and Acceptance**

The AWMC will analyze data and perspectives collected in the course of this study and produce reports that will present data as well as interpretations of what the data means. Reports will be sent to the Office of Water Use Efficiency (Department of Water Resources), Water Conservation Office (U.S. Bureau of Reclamation), and Water Use Efficiency Program (California Bay-Delta Authority), UC-Cooperative Extension offices, and local farm advisors. Copies of the report will be posted on the AWMC web site and notices of the availability of the final report will be sent to irrigation water suppliers.

## **Innovation**

RDI is, by definition, an innovative approach to managing irrigation. Growers who have adopted RDI appear to be dispersed within the farming community. Therefore, the approach taken by this project is to identify conditions (crops, locations, water sources) where RDI is most likely to be practiced and to develop profiles of how RDI is managed among these users. The project will also identify the incentives and limitation for further expansion of RDI technology.

## **Benefits and Costs**

Project costs are presented in table C-1. Due to staffing constraints, project activity will be conducted by AWMC staff and by consultants working under the direction of staff. Most

project costs, apart from labor, will be travel expenses incurred in carrying out the interviews.

The anticipated benefits of the project are

- a clearer understanding of how RDI is viewed by growers
- an improved estimated of how RDI is now being implemented
- projections on the extent to which RDI is likely to be adopted in the coming ten years and of the water savings that may result from use of RDI

**Applicant:**

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  \$ (V)	State Share Grant  \$ (VI)	Life of investment (years)  (VII)	Capital Recovery Factor  (VIII)	Annualized Costs  \$ (IX)
	Administration <sup>1</sup>								
	Salaries, wages	\$21,840	10	\$24,024	\$0	\$24,024	0	0.0000	\$0
	Fringe benefits	\$14,560	10	\$16,016	\$0	\$16,016	0	0.0000	\$0
	Supplies	\$1,900	0	\$1,900	\$0	\$1,900	0	0.0000	\$0
	Equipment	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
	Consulting services	\$42,032	10	\$46,235	\$0	\$46,235	0	0.0000	\$0
	Travel	\$2,500	0	\$2,500	\$0	\$2,500	0	0.0000	\$0
	Other	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(a)	Total Administration Costs	\$82,832		\$90,675	\$0	\$90,675			\$0
(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	10	\$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
	Environmental								
(i)	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)	\$0	0	\$0	\$0	\$0	0	0.0000	\$0
(l)	Monitoring and Assessment	\$0	10	\$0	\$0	\$0	0	0.0000	\$0
(m)	Report Preparation	\$0	10	\$0	\$0	\$0	0	0.0000	\$0
(n)	<b>TOTAL</b>	\$82,832		\$90,675	\$0	\$90,675			\$0
(o)	Cost Share -Percentage				0	100			

1- excludes administration O&M.

## **APPENDIX A**

### **Resumes of Project Management Team And Agricultural Water Management Council**

## **Resumes of the Project Management Team**

### **Mike Wade, Executive Director, Agricultural Water Management Council**

Mike assumed the duties as Agricultural Water Management Council Executive Director in May 2002. Responsibilities include managing and operating the statewide non-profit Council organization and implementation of AB 3616, the Agricultural Water Suppliers Efficient Water Management Practices Act of 1990. AWMC is recognized as the lead organization overseeing agricultural water supplier water management planning and the improvement of agricultural water use efficiency in California.

Mike is also responsible for the day-to-day operation of the California Farm Water Coalition, the state's only educational organization dedicated to providing the public with factual information on agricultural water use. Duties include staff management and delegation of assignments and development of educational programs and public awareness activities on a statewide basis. The distribution of fact-based educational materials to schools is a major priority for the Coalition, which led to the development of nine lessons and an activity book for students ranging from kindergarten to the sixth grade.

Public awareness programs have included advertising on radio, television, theater screen advertising, and on public transit, including the Los Angeles Metropolitan Transit System, BART trains, and MUNI buses in San Francisco and light rail trains in Sacramento.

Mike will be responsible for managing the proposed Investigation of Regulated Deficit Irrigation.

### **Kathryn Charlton, Assistant Executive Director, Agricultural Water Management Council**

Kathryn has been responsible for carrying out program activities for the Agricultural Water Management AWMC since June, 2002. She developed the outreach strategy to reach agricultural water suppliers that were not AWMC members and effectively convey a message about the importance of district participation for mutual benefit. As a result, AWMC membership increased over 20 percent, reaching membership acreage targets outlined in the Cooperative Agreement one year ahead of schedule.

Kathryn managed and oversaw the development of new online net benefit analysis software that is currently being used by irrigation districts to evaluate projects associated with their water management plans. She coordinated efforts to secure USBR funding for an online water conservation plan update web site and directed efforts to integrate CalFed Quantifiable Objectives into the AWMC water management planning process.

Kathryn will assist Mike in managing the proposed Investigation of Regulated Deficit Irrigation.

## **Statement of Qualifications**

### **Agricultural Water Management Council**

#### **Background and Purpose**

The Agricultural Water Management Council (AWMC) was established in 1996 as a non-profit organization dedicated to bringing together all interested parties in agricultural water management. The purpose of the Agricultural Water Management Council is to work with agricultural water suppliers to improve water management efficiency and to demonstrate to the public and water industry how agricultural water is efficiently used.

AWMC works in a voluntary and cooperative manner to establish a consistent, unified, and credible process that will advance agricultural water management in California and assist agricultural water suppliers in demonstrating that they are using water efficiently. It is the Council's responsibility to aid the signatory water suppliers through development and implementation of Water Management Plans to increase efficiency.

AWMC maintains a unique position to provide research and data to agencies and the public interested in California water resource management. AWMC has formed partnerships with the California Department of Water Resources, U.S. Bureau of Reclamation, CALFED Bay-Delta Authority, California Department of Food and Agriculture, and California Irrigation Institute, as well as members from the agricultural community and environmental and public interest groups. All are signatories to the AB 3616 Memorandum of Understanding. Partnerships strengthen the consensus-based actions of the Council and ensure various points of view are represented in AWMC actions. AWMC continues to seek partnerships with those interested in efficient water management.

AWMC strives to create a forum to share and communicate water management strategies and new technologies. The Council maintains a positive relationship with agricultural water suppliers throughout California and works cooperatively on projects that support water use efficiency. Over 100 water suppliers and water resource conservation districts are signatories to the AB 3616 MOU.

#### **USBR Education Grants (2000-2001)**

The Agricultural Water Management Council received an \$85,000 grant in 2001 from the U.S. Bureau of Reclamation (USBR) to provide irrigation water management education to farmers. Grant funds were redistributed to irrigation and resource conservation districts for the purpose of conducting a variety of water management workshops including micro-irrigation, improvement of irrigation practices to reduce deep percolation, irrigation system maintenance, mobile lab training and water use efficiency workshops. Program goals were met on-time and under budget.

#### **Three-way Cooperative Agreement (2002-2004)**

AWMC received additional support in 2001 when a three-way cooperative agreement was signed between the AWMC, DWR and USBR. The Cooperative Agreement's primary purpose was to implement AB3616, the Efficient Management Practices by Agricultural Water Suppliers Act of 1990. The California Bay-Delta Authority (at the

time referred to as CalFed) assisted in negotiations to bring the three parties together and develop a workplan outlining the tasks that would guide AWMC activities. DWR and USBR each provided \$600,000 in funding over the three-year Cooperative Agreement contract period.

Under the guidance of the Cooperative Agreement, the AWMC assisted member districts in developing water management plans, oversaw independent audits of the plans, worked to integrate CalFed Quantifiable Objectives into the plans, and created a database for tracking plan implementation as, well as initiating additional cooperative activities within the water management community. Today over four million irrigated acres are part of the AWMC water management planning process and efforts continue to increase AWMC membership among non-member districts.

### **Integration of Quantifiable Objectives into Water Management Planning**

As part of the Cooperative Agreement, AWMC developed a process for agricultural water suppliers to identify local water management opportunities that contribute to specific Bay-Delta Authority objectives. This project communicates regional objectives to the local water management planning level and assists water suppliers in understanding the relationship between local and statewide management objectives. The Targeted Benefits and Quantifiable Objectives were developed for specific geographic regions and water bodies. AWMC has developed district reports for members showing which Targeted Benefits and Quantifiable Objectives are applicable to each district and a methodology for linking the Targeted Benefits and Quantifiable Objectives to local actions. AWMC is currently working to develop a format to integrate the Quantifiable Objectives into the water management planning process.

### **USBR Web Water Conservation Plan Update Reporting Website (2004-2007)**

AWMC and USBR worked together in 2004 to develop an Internet web site that would allow federal water contractors with water conservation plans to complete and submit their required annual updates completely online. The project is funded through a \$101,000 USBR grant over three years. Utilizing a special data base on a secure server, AWMC will be able to collect and report data to the USBR in a variety of report formats that will improve the speed and accuracy of the reporting process. AWMC members can access the web site with a secure username and password, edit their reports, print copies, and submit a final version in electronic format.