

RECLAMATION

Managing Water in the West

Mid-Pacific Region

2008 Conservation and Efficiency Criteria



Bureau of Reclamation, Mid-Pacific Region

Standard Criteria for Evaluating Water Management Plans

The Standard Criteria for Evaluating Water Management Plans (Criteria) were developed by the Bureau of Reclamation (Reclamation) in response to the Central Valley Project Improvement Act of 1992 (CVPIA) and in accordance with the Reclamation Reform Act of 1982 (RRA).

Who Must Use These Criteria. The Criteria apply to any Water Management Plan (Plan) submitted to Reclamation as required by applicable Central Valley Project (CVP) water service contracts, settlement contracts, or any contracts that specifically invokes the Criteria.

Exceptions. The following are exempted from the requirement to prepare a Plan using the Criteria:

- All Contractors that receive **only** irrigation water from any Federal Reclamation project, and deliver water to less than a current five-year average of 2,000 acres of land.
- All Contractors that receive less than a five-year average of 2,000 AFY of **only** municipal and industrial (urban) water from any Federal Reclamation project.
- All Contractors that receive any combination of irrigation and/or urban water amounting to less than a current five-year average of 2,000 acre-feet from any Federal Reclamation project.

<u>Section</u>	<u>Title</u>
One	DESCRIPTION OF THE DISTRICT
Two	INVENTORY OF WATER RESOURCES
Three	BEST MANAGEMENT PRACTICES FOR AGRICULTURAL CONTRACTORS <ul style="list-style-type: none">a. CRITICAL BEST MANAGEMENT PRACTICESb. EXEMPTIBLE BEST MANAGEMENT PRACTICES
Four	BEST MANAGEMENT PRACTICES FOR URBAN CONTRACTORS
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If some data called for in the Criteria are not available, the Contractor shall include in its Plan how the Contractor will gather the data and have it available for the next Plan revision.

Contractors are strongly encouraged to submit Plans in an electronic format to the local Area Office for review. After Plans are reviewed and deemed adequate, the Regional Office will request submission of final Plans at the following address:

Bureau of Reclamation
Water Conservation Office, MP-410
2800 Cottage Way
Sacramento, California 95825

INTRODUCTION

Background And General Information

The purpose of the Criteria is to promote, using best available cost-effective technology and Best Management Practices (BMPs), the highest level of delivery water management achievable by Contractors and the implementation of water-use efficiency measures reasonably achievable by their customers.

Section 210 of the RRA requires Contractors to prepare and submit Plans with definite goals, appropriate Water Conservation measures, and timetables. Contractors are to submit Plans every 5 years.

Section 3405 (e) of the CVPIA requires that the Secretary of the Interior establish Criteria to evaluate CVP Plans by April 30, 1993, and that the Criteria be reviewed at least every 3 years and be revised if necessary.

This law specifies that the Criteria identify BMPs including, but not limited to, efficient Water Management practices being developed according to California State law or reasonable alternatives.

Reclamation drafted and issued the initial “Criteria for Evaluating Water Conservation Plans” in April 1993. The Criteria were revised in September 1996 and renamed “Criteria for Evaluating Water Management Plans.” The Criteria were again revised in 1999, 2002, 2005 and 2008.

Reclamation developed and distributed a Water Management Planner detailing the type of information required by the Criteria. The Water Management Planner will be updated to conform to the revised Criteria.

For the purposes of the Criteria only, the following definitions will be used:

1. Agricultural Water Management Council (AWMC) - A consortium of agricultural water agencies, and public interest groups to implement Water Conservation practices in California. This effort was formalized in a Memorandum of Understanding signed in 1996. Signatory water suppliers agree to develop and implement comprehensive conservation BMPs using sound economic criteria.
2. Best Management Practice (BMP) - A policy, program, practice, rule, regulation and/or ordinance, or the use of devices, equipment, or facilities that meet either of the following:
 - a. An established and generally accepted practice among Contractors that results in more efficient use, conservation/management of water, or
 - b. A practice for which sufficient data are available from existing Water Management projects to indicate that significant efficiency improvements or management related benefits can be achieved; that the practice is technically and economically reasonable and not socially or environmentally unacceptable; and that the practice is not otherwise unreasonable for most Contractors to carry out.
3. CALFED - State-Federal program formalized in June 1994 upon the execution of a Framework Agreement by the State and Federal agencies having management and regulatory responsibility in the Bay-Delta Estuary. The mission of CALFED is to develop and implement a long-term comprehensive plan that will restore the ecological health of the Bay-Delta.
4. California Urban Water Conservation Council (CUWCC) - A consortium of urban water agencies and public interest groups to implement Water Conservation practices in California. This effort was formalized in a Memorandum of Understanding (MOU) signed in 1991. Signatory water suppliers agree to develop and implement comprehensive conservation BMPs using sound economic criteria.
5. Conjunctive Use - The planned and coordinated use of surface and ground water supplies to increase water supply reliability, as may be included in a Ground Water Management Plan or Banking Program
6. Contractor - Entities that contract with Reclamation for urban and/or for agricultural water.
7. District - The physical boundaries of the Contractor's service area.
8. Five-Year Plan Revision - The revision of a Plan using the most recently adopted Criteria. Under the RRA, Contractors are required to re-evaluate and re-submit to Reclamation their respective Plans every 5 years.
9. Ground Water Banking Program - The intentional storage of supplies in subsurface aquifers beyond coincident irrigation needs with the expectation of subsequent retrieval for beneficial use. The Contractor should have a reasonable rationale of how the Contractor or customers will benefit when the water is retrieved for beneficial use. Ground-water banking usually involves

keeping an account of water input and the subsequently use by predetermined or specified parties. Ground Water Recharge alone is not a Ground Water Management Plan or Banking Program. An acceptable Ground Water Management Plan or a Ground Water Banking Program must have a method of retrieval of such water for beneficial use.

10. Ground Water Management Plan - A set of practices and management actions that improve ground-water conditions with the intent of protecting and/or increasing the benefits including the sustainability of the ground-water aquifer.

11. Ground-Water Recharge - The natural or intentional infiltration of surface water into the zone of saturation.

12. Implementation - Achieving and maintaining the staffing, funding, and the priority levels necessary to achieve the level of activity called for in the descriptions of the various BMPs. And to satisfy the commitment by the Contractor to use good-faith efforts to optimize benefits from implementing BMPs.

13. Inflow - Water that enters the District boundaries which also enters the District distribution system.

14. Outflow - Water that leaves the District boundaries which was once inside the District distribution system.

15. Retailer - A Contractor who sells all water directly to the water user.

16. Riparian Evapotranspiration (ET) - ET from non-crop vegetation usually growing along the banks of water conveyance and storage facilities.

17. Water Conservation/Water Management - Use of less water to accomplish the same purpose(s) or the use of the same amount of water to accomplish additional benefits. An example of the latter is Implementation of a BMP that results in increased total crop production using the same amount of water. Water Management that results in the increased benefits of water can be achieved through the implementation of BMPs identified in these criteria. For the purpose of these Criteria, Water Conservation is considered the same as Water Management.

18. Water Inventory - An approach used in the Plan that identifies and quantifies all Inflows, Outflows, and other uses of water by the Contractor in order to identify areas of potential improved water management.

19. Wholesaler - A Contractor who sells water to entities who resell the water usually to multiple customers.

Flexibility and Coordination

The Criteria recognize the differences between Contractors, and have been written to be flexible enough to allow each Contractor to develop and implement the types of programs that will best accomplish improved Water Management within their boundaries. In some cases, the Contractors may choose to pool resources and implement joint programs. The Criteria not only allow, but also encourage, joint efforts toward program Implementation.

PLAN CONTENTS

Section 1: Description of the District

Intent:

To describe general physical information about the District in order to form a basis for evaluating improvements by, and within, the District, as well as provide the reader with information about physical aspects of the District that may affect the potential for improved Water Management.

Evaluation:

In certain circumstances, specific information may not be available. In these circumstances, the section will be considered “adequately addressed” if the Plan describes how the information will be obtained for the next Plan revision.

Detail Expected in an Adequate Plan:

Plans shall describe the District history, location and facilities, size, terrain and soils, environment, climate, operating rules and regulations, customer water delivery measurements, outflow water measurement, water rate schedules and billing, and water shortage allocation policies. For data not available during the preparation of this Plan, the Contractor shall describe how the information will be obtained for the next Plan revision.

A. History: Give an historical overview of the District. Provide a timeline, which includes the formation of the District, date the District was formed, population served, original size, water supplies, contract information with Reclamation and others, and changes in land use. For agricultural Districts, describe changes in irrigated acreages, cropping patterns, and evolving irrigation methods.

B. Location and Facilities: Describe the District’s incoming flow measurement method and locations, water conveyance and delivery system (unlined canals, lined canals, pipelines, etc.) and storage facilities (reservoirs, regulating reservoirs, etc.). Agricultural Contractors should describe district outflow points, spill recovery systems, and whether the delivery system is on-demand (no lead time or scheduling necessary); scheduled (i.e., water order 24 hours in advance); rotation (i.e., farmer receives water every 10 days); or other. Describe any restrictions on the Contractor’s water source(s) and proposed changes that will be implemented in the next 5 years.

C. Topography and Soils: Describe the topography of the District (hilly, flat, sloping to a water course, etc.). Indicate the impact of topography on water operations and management within the District. Describe major soil classifications and corresponding acreages within the District that affect the use of water (salinity or high-water table, high or low infiltration rates, etc.).

D. Climate: Describe the general climate of the District. Include average precipitation, maximum and minimum temperatures, average wind velocity, and frost-free days. If there are

areas within the District known to have significantly different microclimates, describe how these affect Water Management decisions and operations. Include the source of the climate data.

E. Natural and Cultural Resources: Describe any known natural resources (wetlands, rivers, streams, lakes, fisheries, threatened plant and animal communities, spawning grounds, flyways, etc.) within the District. Indicate any management of these resources in the past or present by the Contractor. Describe any known recreational and/or cultural resources within the District.

F. Operating Rules and Regulations: Attach a copy of the Contractor's operating rules and regulations which describe information on water allocation policies, lead time necessary for water orders and water shut-off, policies regarding return flows and outflow leaving the District, and policies related to water transfers into or out of the District (by farmer and Contractor).

G. Water Measurement, Pricing, and Billing: List the total number of customers/connections/ turn-outs, the number currently measured and the percentage of customer water deliveries measured. List the types and numbers of measurement devices (meters, calibrated gates, weirs, etc.), level of accuracy, frequency of calibration, and maintenance and reading schedule.

Describe the basis for water charges for agricultural and urban uses. If details are complex, provide an overview and reference the page of the Contractor's written operating rules and regulations that provides additional detail. Be sure the following can be found easily: Basis of charges for agricultural water (by quantity, by acre, by crop, by land assessment, by other charges, etc.) and/or for urban (by customer class, by quantity, flat rate, etc.).

For water use billed by quantity, describe the rate structure (declining, uniform or increasing block rate, etc.). Include the billing frequency (monthly, bimonthly, annually, etc.), a sample of each type of bill, and a description of the record management system.

H. Water Shortage Allocation Policies: Attach a copy of the Contractor's agricultural and/or urban water shortage policies, drought plan, or any similar document.

Describe how reduced water supplies, including hardship water, are allocated. Describe the Contractor's policies that address wasteful use of water and describe enforcement methods.

Section 2: Inventory of Water Resources

Intent:

To describe the quantity and quality of water resources (sources, uses, and discharges) available to the Contractor.

Evaluation:

In certain circumstances, specific information may not be available. For these circumstances, the section will be considered adequately addressed if the Plan describes how the information will be obtained for the next Plan revision.

Detail Expected in an Adequate Plan:

This section shall include a description of the Contractor's surface water supply, ground-water supply, other water supplies, source water quality monitoring programs, water uses within the District, outflow from the District, urban waste-water disposal, and a water budget. Provide this information for one of the last 2 years prior to preparation of each 5-year Plan revision. In addition to one of the last 2 years, a Contractor may submit data from a different year, or a combination of different years that is representative of their average water conditions. These data are intended to be used for planning purposes. For data not available during the preparation of this Plan, the Contractor shall describe how the information will be obtained for the next Plan revision.

A. Surface Water Supply: Describe the acre-foot amounts delivered to the Contractor by each of the Contractor's surface sources for the specified years. Describe any water quality limitations or management concerns associated with the identified water sources. Provide the amount of water received under each right and/or contract for each of the last 10 years.

B. Ground Water Supply: Describe the general characteristics of the ground-water basin(s) that underlie the District. Provide a map locating Contractor-operated water wells, and managed ground water Recharge areas. If there is Conjunctive Use of surface and ground water, describe it. For managed ground-water basins, attach a copy of the Contractor's Ground Water Management Plan or a description of the Contractor's Ground Water Banking Program.

C. Other Water Supplies: Identify any long-term water supplies not described above (drainage from upstream Contractors, reclaimed urban waste water, local/water rights water, transfer agreements with adjacent or other Contractors, etc.).

D. Source Water Quality Monitoring Practices: If water quality problems exist, describe the water quality testing program (frequency of measuring and analyses performed) and which agencies conduct the water testing. Also, describe the Contractor's role in the program.

E. Water Uses within the District:

1. *Agricultural*: Describe the type and acreage of crops grown in the District; include seasonal ET amounts, water required for cultural practices, and the leaching requirement for each crop. List the types of irrigation systems used for each crop.

2. *Urban*: Describe the urban water use, by customer type, within the District. Describe, where applicable, the waste water collection and treatment systems, recycled water uses, and methods of disposal.

3. *Ground Water Management Plan/Banking Programs*: List the quantity of water used for planned and incidental Ground-Water Recharge, including method of recharge and method of retrieval.

4. *Transfers, Exchanges, Rescheduling, Purchases, or Sales*: Describe the source and quantity of water in any transfer, exchange, reschedule, purchase or sale, in or out of the District, and for what uses. Describe any other water transactions, such as trades, wheeling, wet year/dry year exchanges, etc. Reporting sales or purchase price or any other transaction cost is not required.

5. *Other*: Describe any other uses of water.

F. Outflow from the District: Identify where outflow (surface and subsurface irrigation drainage, spill, etc.) leaves the District, how it is measured, the measurement accuracy, and where the outflow goes. If outflow leaves the District and is reused, identify the location and type of that reuse, if known. Describe any water quality monitoring programs for surface or subsurface drainage/outflow water (frequency of measuring and analyses performed). Identify any constituents (selenium, pesticides, salinity, etc.) that limit reuse of the outflow water. Describe any usage limitation resulting from the outflow water quality. Provide a brief discussion of the District's involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants which would significantly degrade water quality in the receiving surface waters.

Section 3405 of the CVPIA states that all new, amended, and renewed CVP contracts after October 31, 1992, shall provide that the Contractor or agency shall be responsible for compliance with all applicable State and Federal water quality standards applicable to surface and subsurface agricultural drainage discharges generated within its boundaries. Contractors included in the drainage problem area, as identified in "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)," should also complete Attachment A.

G. Water Accounting: Develop a water inventory for the Contractor based on one of the last 2 years prior to preparation of each 5-year Plan revision. If a Contractor chooses, a representative water supply year can also be included. The inventory should include the following:

1. *Quantify Contractors' Water Supplies*

- a. Surface water supplies, imported and originating within the District, by month
- b. Ground water extracted by the District, by month
- c. Effective precipitation by crop
- d. Estimated annual ground water extracted by non-District parties (if records are not available, provide an estimate and basis for estimation)
- e. Recycled water by month (water originating from a municipal waste-water treatment plant)
- f. Other supplies by month

2. *Quantify Water Used*

- a. Conveyance losses, including seepage, evaporation, and operational spills
- b. Consumptive use by riparian vegetation
- c. Applied irrigation water, crop ET, water used for leaching and cultural practices (frost protection, soil reclamation, etc.)
- d. Urban water use
- e. Ground Water Recharge
- f. Water exchanges, transfers and banking
- g. Estimated deep percolation within the District
- h. Flows to perched water table or saline sink
- i. Total urban wastewater utilized within the system
- j. Outflow water leaving the District
- k. Other

3. *Overall Water Budget:*

Compare total water estimated to be available for sale within the District with the total water actually sold by the District.

H. Assess Quantifiable Objectives: Identify the Quantifiable Objectives that apply to the District and provide a short narrative describing past, present and future plans that address the CALFED Water Use Efficiency Program goals identified for the District.

Section 3: BMPs for Agricultural Contractors

Intent:

To develop an Implementation plan for agricultural BMPs that have been proven to accomplish improved (more efficient) Water Management.

Evaluation:

Some BMPs are considered universally applicable (critical) and others are considered “generally applicable” (exemptible). Under certain circumstances, one or more of the exemptible BMPs may not be appropriate for Contractor Implementation. The Contractor will implement each exemptible BMP, unless the Contractor provides adequate documentation that supports an exemption or states the reason the BMP is not applicable in accordance with Attachment B.

Detail Expected in an Adequate Plan:

For the purposes of the Criteria, the Plan needs to describe the program that the Contractor determines will best accomplish each BMP. The success of some of the practices will depend on cooperative work with other entities. There may be constraints to successful Implementation of planned programs. Monitoring and updating will allow the Contractor to modify planned programs that do not accomplish the BMP as designed.

Wholesalers are responsible for their subcontractor’s Water Conservation compliance. Wholesalers may include subcontractors in a single Plan or require each retailer to prepare separate Plans. If retailers prepare their own Plan, the wholesaler should be involved to the extent necessary to insure it is found to meet the Criteria.

A. Critical BMPs for Agricultural Contractors

This section lists the BMPs that all Contractors will implement or are already implementing. Provide a description of the Implementation plan and include time schedules, budgets and monitoring, and maintenance plans for each BMP. The Contractor may need to study the most effective way to implement a BMP. If a BMP is to be studied, please provide details and schedules of the study. The Contractor must include in the Plan, a projected budget for Implementation of BMPs during the 3 years following Plan revision.

1. Water Measurement

Measure the volume of water delivered by the Contractor to each customer, except Class II water. Measure flows with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6 percent by volume. Three typical categories of measurement devices are: Devices with totalizers, standard flow measurement devices, and non-standard but calibrated devices.

The first category includes devices with totalizers that measure volume: Propeller meters, Venturi meters, magnetic meters, and acoustic meters. These have a high level of accuracy with proper installation and periodic maintenance and calibration. This category also includes

calibrated pumps when the suction side water level fluctuation is small when compared to the lift (+/- 6 percent) and the discharge pressure is not changed.

The second category includes standard flow measurement devices that measure flow rate and also require accurate measurements of water level and delivery time to determine volumes: Replogle and Parshall flumes; rectangular, trapezoidal (Cipolletti) and V-Notch weirs; and canal meter gates. These devices require proper installation, continuous or sufficiently frequent recording of water levels and flow rates, delivery beginning and ending times, adjustments for approach velocity in some cases, and regular maintenance and calibration for good accuracy.

The third category includes non-standard, calibrated flow measurement devices. This category includes special measurement devices developed by a District. Typically, there are no published standard dimensions or flow tables for such devices. Consistent dimensions and installations; accurate determination of delivery time; local calibration and a verification of accuracy, based on a representative sample number of devices measured over time; and a proposed schedule for maintenance and calibration would be necessary for acceptability. This category also includes calibrated pumps when the suction side water level fluctuation is small when compared to the lift (+/- 6 percent) and the discharge pressure is not changed.

Rough estimates or instantaneous measurements of flow rate or volume are **not** acceptable since such measurements do not provide a documented reasonable degree of accuracy. Examples are, flow rate estimates at check structures, the sum of the flow in siphon tubes, the use of occasional flow readings and multiplying by the time between readings, or other methods of measurement not specified here.

2. *Designate a Water Conservation coordinator.* Designate an individual to develop and implement the Plan and develop progress reports. Include the coordinator's title, business address, business phone number, and business email address.

3. *Provide or support the availability of Water Management services to water users.* Develop and conduct individual programs or cooperative programs with other Contractors in regional programs. Some Contractors may want to contract or arrange program delivery through consulting firms, cooperative extension, or others. Services required include, but are not limited to:

- a. On-farm evaluations
 - 1) On-farm irrigation and drainage system evaluations using a mobile lab type assessment, and/or
 - 2) Timely field and crop specific water use information to the water user.
- b. Normal year and real-time irrigation scheduling and crop ET information (i.e., California Irrigation Management Information System (CIMIS)).
- c. Surface, ground, and drainage water quantity and quality data.

- d. Agricultural Water Management educational programs and materials for farmers, staff, and public (soil moisture and salinity monitoring; in-school awareness programs; Agwater software; efficient irrigation techniques, crop water budget and other approaches; program delivery via workshops, seminars, newsletters, field days and demonstrations, websites, etc.).
- e. Other

4. *Pricing structure.* Adopt a water pricing structure for Contractor water users based at least in part on quantity delivered.

5. *Evaluate the need, if any, for changes in policies of the institutions to which the Contractor is subject.* Evaluate the policies of agencies that provide the Contractor with water to identify the potential for institutional changes to allow more flexible water deliveries and storage. Initiate necessary modification as practicable.

6. *Evaluate and improve efficiencies of Contractor's pumps.* Many Contractors operate booster pumps or ground-water pumps as part of their delivery facilities. A program to evaluate and improve the efficiencies of such pumps can result in energy savings or peak load reductions, or reveal capacity limitations due to inefficient facilities. Over the long term, the Contractor can reduce operational costs and improve operational efficiency.

B. Exemptible BMPs for Agricultural Contractors

Each Contractor shall develop a program to implement the following BMPs unless the Contractor demonstrates that the practice is not appropriate for the Contractor to implement. The Contractor may spend time studying the most effective way to implement a BMP or whether a BMP is appropriate for a Contractor. For appropriate BMPs, provide a description of the Implementation plan and include time schedules, budgets, and monitoring plans. If a BMP is to be studied, provide details and schedules of the study. These studies must be completed expeditiously and before the next Plan revision. The Contractor should follow the exemption Criteria (see Section Six) to justify exemptions and document the exemption in this section or state the reason the BMP is not applicable in accordance with Attachment B.

1. *Facilitate alternative land use.* Facilitate alternative uses (voluntary, compensated) for lands with exceptionally high water duties, or whose irrigation contributes to significant problems such as drainage.

2. *Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils.* The use of recycled urban waste water for agricultural irrigation provides an opportunity for reuse of an available water supply. Reuse of urban waste water can be an important element in overall Water Management.

3. *Facilitate the financing of capital improvements for on-farm irrigation systems.* Financial aid to farmers may include cataloging available funding sources and procedures and/or obtaining funding, administering the program, and providing low-interest loans.

4. *Incentive pricing.* Implement a pricing structure that promotes one or more of the following goals:

- a) More efficient water use at the farm level.
 - b) Conjunctive Use of ground water.
 - c) Appropriate increase of Ground-Water Recharge.
 - d) Reduction in problem drainage.
 - e) Improved management of environmental resources.
 - f) Effective management of all water sources throughout the season by adjusting seasonal rates based on current conditions.
5. a) *Line or pipe ditches and canals.* Line or pipe distribution systems to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.
- b) *Regulatory reservoirs.* Construct regulatory reservoirs to improve distribution system delivery flexibility.

6. *Increase flexibility in water ordering by, and delivery to, water users (within operational limits).* Modify distribution facilities and controls to increase the reliability, consistency, and flexibility of water deliveries.

7. *Construct and operate Contractor spill and tailwater recovery systems.* Construct facilities to capture and reuse District operational spills.

8. *Plan to measure Outflow.* Measure the volume outflow with methods or devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 20%. Identify spill locations, prioritize spill locations by quantity of spill, determine best measurement method/cost. If outflow measurement has not yet been completed, submit funding proposal, and provide the Estimated Cost and milestone schedule.

9. *Optimize Conjunctive Use.* Increase planned Conjunctive Use of surface and ground water within the District. Conjunctive Use usually includes a Ground Water Management Plan or Banking Program.

10. Automate canal structures. Automation of canal structures may increase flexibility in water deliveries and increase the Contractor's control over its water supplies; thereby, providing the opportunity to improve the efficiency of water use.

11. Facilitate or promote water user pump testing and evaluation.

12. Mapping. Develop Geographic Information System-based maps of the distribution system and drainage system. If mapping has not yet been completed, include the estimated cost and milestone schedule.

Section 4: BMPS for Urban Contractors

Intent:

To develop an Implementation plan for urban BMPs that have been proven to accomplish improved (more efficient) Water Management.

Evaluation:

These BMPs are currently evaluated based on the CUWCC's current MOU Exhibit 1 (BMP Definitions, Schedules, and Requirements). Please note that the CWUCC is currently in the process of revising the BMPs. Once the revisions are finalized, this Criteria will require contractors to implement BMPs under the CUWCC new MOU. Before completing your Water Management Plan, contact the CUWCC or your Area Office Water Specialist for updates regarding the status of acceptable BMP implementation. Under certain circumstances, the generally applicable practices may not be appropriate for Contractor Implementation. Contractors will implement each BMP unless the Contractor provides adequate documentation for an exemption. BMP Number Four, Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections, is the only BMP which is not exemptible.

Detail Expected in an Adequate Plan:

This part of the Plan identifies Contractor-specific programs to accomplish the BMPs. It is understood that programs developed by wholesale agencies may not be implemented at the retail customer level, except within the Contractor's retail service area. For the purposes of the Criteria, the Plan needs to describe the program that the Contractor thinks will best accomplish the BMP. The development and Implementation of the BMPs in a wholesaler's plan is the responsibility of Reclamation's Contractors.

The success of some of the practices will depend on cooperative work with other entities. It is recognized that there may be constraints to successful Implementation of planned programs. Monitoring and updating will allow the Contractor to modify any planned programs that do not accomplish the BMP as designed.

Wholesalers are responsible for their subcontractor's Water Conservation compliance. Wholesalers may include subcontractors in a single plan or require each retailer to prepare separate plans. If retailers prepare their own plan, the wholesaler should be involved to the extent necessary to insure it is found to meet the Criteria.

BMPs for Urban Contractors

This section lists the BMPs that the Contractor will implement or are already implementing. Provide a description of the Implementation plan and include time schedules, budgets, and monitoring plans.

- 1. Water survey program for single-family residential and multi-family residential customers.*
- 2. Residential plumbing retrofit.*

3. *System water audits, leak detection, and repair.*
4. *Metering with commodity rates, for all new connections and retrofit of existing connections (**NOT EXEMPTIBLE**).*
5. *Large landscape conservation programs and incentives.*
6. *High-efficiency washing machine rebate programs.*
7. *Public information programs.*
8. *School education programs.*
9. *Conservation programs for commercial, industrial, and institutional (CII) accounts.*
10. *Wholesale agency assistance programs.*
11. *Conservation pricing.*
12. *Conservation coordinator.*
13. *Water waste prohibition.*
14. *Residential ultra low flow toilet (ULFT) replacement programs.*

Section 5: Plan Implementation

Water Management in general, and Water Management planning in particular, is an on-going process that starts with the preparation of a comprehensive Plan. The purpose of preparing a Plan is for the Contractor to implement the programs developed during the planning process. Implementation of programs identified in the Plan is critical to the success of Water Management within a District. The Criteria focus not only on what constitutes an adequate Plan, but also on the Implementation of the programs described in that Plan.

If there are CALFED Quantifiable Objectives (QOs) that apply to the geographic location of your district lands, identify the QOs that apply to the District and comment on potential for Contractor participation (see Attachment C for more information).

Pursuant to water service and settlement contract terms, Contractors must report on Plan Implementation annually.

Agricultural Contractors can complete an annual update by filling in the information for BMPs on the Agricultural Water Management Council site at <http://www.agwatercouncil.org/>.

Urban Contractors can complete an annual update by filling in the information for Urban BMPs on the CUWCC website. Contractors who are signatories of the CUWCC are currently submitting annual reports via the CUWCC's *BMP Reporting Database* located on their website at www.cuwcc.org. Through an agreement with the CUWCC, Reclamation's urban non-signatories may now submit their Annual Reports through the CUWCC's web site using "guest accounts."

Section 6: Exemption Process

Intent:

To demonstrate in a clear and concise manner that a BMP is not cost-effective, not financially feasible, not legally, or not environmentally possible for a Contractor to implement. For Agricultural Contractors, only the BMPs in the exemptible section (B. BMPs) are exemptible. For Urban Contractors, all BMPs, except BMP 4 (Metering), are exemptible.

Evaluation:

Some BMPs are not appropriate or possible for a Contractor to implement. To document an exemption, provide the basis, rationale, and details for excluding a BMP. Such documentation must address, as appropriate, cost-effectiveness, financial feasibility, and environmental or legal constraints to BMP Implementation. Urban BMP exemption requests should use the CUWCC exemption forms. All urban exemption requests will be reviewed for completeness, accuracy, and appropriateness by an independent contractor. Reclamation will also consider exemption requests prepared using the final AWMC exemption process or the CUWCC exemption process.

Detail Expected in an Adequate BMP Exemption:

Legal Constraints

In order to justify a BMP exemption, because it would not be legal for the Contractor to implement, detail the following:

1. A list of any known laws, regulations, court decisions, or other legal constraints that make it illegal for the Contractor to implement the BMP.
2. A list of the steps that would be required to remove these constraints.
3. A description of what steps the Contractor has taken to remove these constraints.
4. Documentation of efforts by the Contractor to work with other entities that would have the legal authority to carry out the BMP within the Contractor's service area.

Environmental Constraints

In order to justify an exemption due to known adverse environmental impacts, the Plan must document the critical environmental issues and known (qualitative and/or quantitative) negative impacts of the BMP, and an explanation of why effective mitigation of these impacts is not possible. If mitigation of the environmental impacts is possible, the practice must be implemented unless it can be exempted by another exemption category. For example, if the mitigation costs make the project economically infeasible, a discussion of the mitigation plan and necessary mitigation costs should be included as a part of the economic analysis.

Economic Constraints

In order to justify an exemption due to economic constraints, the Plan must document the following:

1. A benefit-cost analysis that demonstrates the costs to the Contractor outweigh the benefits to the Contractor over the life of the measure. The Contractor must perform the analysis by comparing the present value of all benefits to the present value of all costs. Document the projected/estimated benefits and costs and the methodology for analysis (benefits and costs should be quantified to the extent possible). The analysis performed for each excluded BMP (from the Contractor's perspective) must include, but is not limited to, the following benefits and costs:

Benefits

- All capital costs avoided by the Contractor which include, but are not limited to, the costs associated with the development of new supplies (studies, construction, labor, etc.), transportation, the required increase in storage, distribution capacity, wastewater facilities and treatment capacity, etc.
- Operation and maintenance (O&M) costs associated with the decrease in the production and distribution of water or the treatment and disposal of wastewater that include, but are not limited to, energy, labor, treatment, storage, drainage treatment and disposal, etc.
- Water purchases avoided by the Contractor.
- Environmental costs avoided by the Contractor.
- Environmental enhancements.
- Revenues from other entities that include, but are not limited to, revenue from the sale of water made available by the BMP, financial incentives received from other entities, etc.
- Other benefits to the Contractor customers that include, but are not limited to, hydropower, improved crop yields, improved crop quality, labor savings, fertilizer savings, increased farm income, etc.

Costs

- Capital expenditures incurred by the Contractor for Implementation of the BMP that include, but are not limited to, equipment, supplies, materials, construction, etc.
- O&M costs to plan, design, implement, enforce, and evaluate the practice.

- Financial incentives to customers.
- Costs to the environment (describe the nature of the negative impact(s) and potential losses to the environment).
- Other costs to the Contractor.

Several accepted benefit-cost analysis methodologies exist (California Energy Commission's Integrated Resource Planning Methodology, Generally Accepted Accounting Principles, AWMC's Net Benefit Analysis, etc.). A Contractor is considered to be the best suited to evaluate their own economic situation with an appropriate methodology.

2. A discussion and quantification, to the extent possible, of other benefits associated with the Implementation of the BMP that may be of interest to potential partners, but are not the direct sole responsibility of the Contractor.

Financial Constraints

In order to adequately justify an exemption due to financial constraints, the Plan must clearly document the following:

1. The benefits and costs of the BMP to the Contractor.
2. The Contractor's funding needed to implement the BMP.
3. A discussion regarding why the Contractor cannot finance the BMP through rate adjustments, assessments, etc.
4. A discussion of the Contractor's reasonable efforts to secure funding from other entities that include, but are not limited to, lending institutions and bonding authorities, and an explanation of why these entities would not provide funding.
5. The required amount of a grant or subsidy that would be needed to feasibly implement the BMP if financing or partnerships could not be obtained.

Section 7: Regional Criteria

Regional Criteria have been developed for the Sacramento Valley River Contractors as a pilot project. No other Regional Criteria have been explored.

Section 8: Five-Year Plan Revision Procedure

Revision Process

Pursuant to water service and settlement contract terms, Contractors are required to submit revised Plans every 5 years. Contractors must use the most recently adopted Criteria for a new Plan or a 5-year Plan revision. The Contractor must continue to file an annual update every year to report Implementation actions taken.

Review Process

Contractors are requested to submit draft Plans to the Area Office for review and forwarding to the Regional Office. Once forwarded to the Regional Office, Contractors will receive, within 90 days, notification of Reclamation's acceptance or request for modification. Following notification by Reclamation that the Plan has conditionally met the requirements of the Criteria, Contractors may submit three hard copies of the complete Plan, but are strongly encouraged to submit one electronic copy. A resolution by the Contractor's Board of Directors formally adopting the Plan must be submitted. The status of the Contractor's Plan will then be noticed in the *Federal Register*, and the public is given 30 days in which to comment. Copies of the document will be available for review at Reclamation's Mid-Pacific Regional Office and the appropriate Area Office. If no comments are received within 30 days, the review process will officially be complete. If public comments are received, additional changes may be required.

Signatories to the AWMC

Contractors who are signatories of the AWMC should also submit the Plan to the AWMC after notification by Reclamation that the Plan has conditionally met the requirements of the Criteria. The AWMC will review the Plans using Reclamation's Criteria. The AWMC may provide comments to Reclamation within 30 days of receiving the Plan. Reclamation will review AWMC comments as part of its concurrent review of the Plan. The goal is to have the Contractor's Plan meet the requirements of both Reclamation and AWMC.

Consequences of Non-Compliance

Under most conditions, an adequate Plan must be in place before Reclamation will consider extending any discretionary benefits. Discretionary benefits include, but are not limited to, funding through the Water Conservation Field Services Program or Efficiency Incentive Program (except for Plan development), and assistance from Reclamation sponsored technical assistance programs.

Attachment A

Information Required of Contractors Located in a Drainage Problem Area

The Contractor's included in the drainage problem area, as identified in "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)," are listed, by sub-area, below. If future editions of the drainage report revise the boundaries of a drainage problem area or other factors used to determine which Contractors are in a drainage problem area, Reclamation will revise Attachment A to conform to the current drainage report.

1. Reclamation Contractors in the **Grasslands Subarea**: Broadview Water District, Central California Irrigation District, Del Puerto Water District, Firebaugh Canal Water District, Mercy Springs Water District, Pacheco Water District, Panoche Water District, San Luis Canal Company, and San Luis Water District.

2. Reclamation Contractors in the **Westlands Subarea**: James Irrigation District, Tranquillity Irrigation District, and Westlands Water District.

3. Reclamation Contractors in the **Tulare Subarea**: Alpaugh Irrigation District, Atwell Island Water District, Lower Tule River Irrigation District, and Pixley Irrigation District.

4. Reclamation Contractors in the **Kern Subarea**: Alpaugh Irrigation District.

The Contractors listed above shall describe which recommendations prescribed in "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)" have been incorporated in their Water Conservation programs to improve conditions in drainage problem areas. These recommendations include:

1. Source Control
2. Land Retirement
3. Drainage Water Treatment
4. Drainage Water Reuse
5. Shallow Ground-Water Pumping
6. Evaporation Ponds

Provide a description and level of expenditure for each activity designed to address the recommendations of the San Joaquin Valley Drainage Program. Identify how Implementation of the recommendations has or will substantially reduce deep percolation on drainage problem lands. Describe which recommendations have not been implemented and why.

Attachment B
Non-Applicability of Exemptible BMPs

To establish that a BMP is not applicable to the Contractor, the Plan should explain the reasons why the BMP does not apply to the Contractor. This justification must be consistent with Section 1 of the Criteria titled, "Describe the District." Examples of non-applicability (NA) for each exemptible BMP are listed below. This list is not all inclusive.

Section 3: B. Exemptible BMPs for Agricultural Contractors

1. *Facilitate alternative land use.* NA could include: Contractors without irrigable lands that have exceptionally high water duties or whose irrigation does not contribute to significant problems.

2. *Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils.* NA could include: Completely piped systems, which do not have delivery constraints.

3. *Facilitate the financing of capital improvements for on-farm irrigation systems.* None identified.

4. *Incentive pricing.* Contractor that receives only class 2 water.

5. a) *Line or pipe ditches and canals.* NA could include: Completely piped systems, unlined systems or sections or systems, which are used as part of a planned Conjunctive Use program.

b) *Regulatory reservoirs.* NA could include: Completely piped systems, which do not have delivery constraints.

6. *Increase flexibility in water ordering by, and delivery to, the water users within operational limits.* None identified.

7. *Construct and operate Contractor spill and tailwater recovery systems.* NA could include: Completely piped systems, which do not have delivery constraints.

8. *Optimize Conjunctive Use.* NA could include: Contractors which do not overlie a useable ground-water basin and thus neither the Contractor nor its customers pump or use ground water, and the Contractor has no water supplies other than the contract supply.

9. *Automate canal structures.* NA could include completely piped systems, which do not have delivery constraints.