**Kennedy/Jenks Consultants**

10850 Gold Center Drive, Suite 350
Rancho Cordova, CA 95670
916-858-2700
916-858-2754 (Fax)

# 2010 Urban Water Management Plan – Linda County Water District

July 2011

Prepared for

**Linda County Water District**
1280 Scale Avenue
Marysville, CA 95901

K/J Project No. 1170001*02

# Table of Contents

*List of Tables* ..... *iii*

*List of Figures* ..... *v*

*List of Appendices* ..... *v*

*Abbreviations* ..... *vii*

Section 1: Introduction ..... 1

1.1 Benefits ..... 2
1.2 Scope ..... 2
1.3 Notice of Document Use ..... 2
1.4 Public Participation ..... 3
1.5 Agency Coordination ..... 3
1.6 Plan Adoption ..... 4
1.7 Resource Maximization/Import Minimization Plan ..... 4
1.8 Appropriate Level of Planning for Size of Agency ..... 5
1.9 UWMP Preparation ..... 5
1.10 UWMP Implementation ..... 6
1.11 Resource Optimization ..... 6
1.12 Content of the UWMP ..... 6

Section 2: Supplier Service Area Description ..... 8

2.1 Area ..... 8
2.2 Linda County Water District ..... 8
2.3 Linda County Water District Background and Area History ..... 10
2.4 Climate ..... 10
2.5 Population Projections ..... 11
2.5.1 Population Projection Development Methodology ..... 11
2.5.2 Growth Rates and Projections ..... 11
2.6 Other Demographic Factors ..... 12
2.6.1 Housing Density ..... 12
2.6.2 Future Commercial Development ..... 12
2.6.3 Limited Industrial Uses ..... 12
2.6.4 Agricultural and Landscape Connections ..... 12
2.6.5 Disadvantaged Community Status ..... 13
2.7 Past Drought, Water Demand, and Conservation Information ..... 14

Section 3: Water Use ..... 15

3.1 Historical Water Use ..... 16
3.2 Projected Water Use ..... 16
3.3 Sales to Other Agencies ..... 17
3.4 Other Water Uses and Unaccounted-for Water ..... 17
3.5 Water Use Targets ..... 18

3.5.1 Baseline Per Capita Water Use ..... 19
3.5.2 Urban Water Use Target Calculation ..... 21
3.5.2.1 Compliance Method 1 Calculation Summary ..... 22
3.5.2.2 Compliance Method 3 Calculation Summary ..... 22
3.5.2.3 Minimum Compliance Reduction Target ..... 22
3.5.3 Interim and Compliance Water Use Targets ..... 23
3.6 Total Water Demand ..... 24
3.7 Consequences if Water Supplier Does Not Meet Water Use Targets ..... 24
3.7.1 Low Income Users ..... 25

Section 4: Water Supply ..... 27

4.1 Water Supply Sources ..... 27
4.1.1 South Yuba Groundwater Basin Description ..... 28
4.1.2 Groundwater Supply Wells ..... 29
4.1.3 Past Groundwater Usage ..... 29
4.2 Transfers and Exchanges ..... 31
4.3 Planned Water Supply Projects and Programs ..... 31
4.4 Wholesale Agency Supply Data ..... 31
4.5 Desalination ..... 32
4.6 Recycled Water Plan ..... 32
4.6.1 Wastewater Quantity ..... 33
4.6.2 Pond System – Current Secondary treatment Disposal ..... 34
4.6.2.1 Past, Current, and Future Wastewater Flows ..... 34
4.7 Recycled Water ..... 35

Section 5: Water Quality ..... 37

5.1 Water Quality Issues ..... 37
5.1.1 Surface Water Quality ..... 37
5.1.2 Groundwater Quality ..... 37
5.2 Water Sources Not Available on a Consistent Basis ..... 37
5.3 Factors Resulting in Inconsistency of Supply ..... 37

Section 6: Water Supply Reliability ..... 39

6.1 Supply Sources ..... 39
6.2 Reliability of Supply ..... 39
6.2.1 LCWD's Water Supply Reliability ..... 39
6.2.2 Factors Resulting in Inconsistency of Supply ..... 41
6.3 Normal Water Year Analysis ..... 41
6.4 Single Dry-Year Analysis ..... 42
6.5 Multiple Dry-Year Analysis ..... 42

Section 7: Water Demand Management Measures ..... 44

7.1 DMM 1: Water Survey Programs for Single-Family Residential and Multifamily Residential Customers ..... 46
7.2 DMM 2: Residential Plumbing Retrofit ..... 47
7.3 DMM 3: System Water Audits, Leak Detection, and Repair ..... 48
7.4 DMM 4: Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections ..... 48
7.5 DMM 5: Large Landscape Conservation Programs and Incentives ..... 48
7.6 DMM 6: High-Efficiency Washing Machine Rebate Programs ..... 49
7.7 DMM 7: Public Information Programs ..... 50
7.8 DMM 8: School Education Programs ..... 51
7.9 DMM 9: Conservation Programs for Commercial, Industrial, and Institutional Accounts ..... 51
7.10 DMM 10: Wholesale Agency Programs ..... 52
7.11 DMM 11: Conservation Pricing ..... 52
7.12 DMM 12: Water Conservation Coordinator ..... 52
7.13 DMM 13: Water Waste Prohibition ..... 53
7.14 DMM 14: Residential Ultra Low Flush Toilet Replacement Program ..... 53

Section 8: Water Shortage Contingency Plan ..... 55

8.1 Rationing Stages ..... 55
8.2 Next 3-Year Minimum Supply ..... 56
8.3 Mandatory Prohibitions ..... 56
8.4 Water Shortage Contingency Ordinance/Resolution ..... 57
8.5 Revenue Impacts of Reduced Sales ..... 57
8.6 Catastrophic Supply Interruption Plan ..... 58
8.7 Water-Use Monitoring Procedures ..... 60

*References ..... 61*

## List of Tables

Table 1-1: Coordination with Agencies ..... 4
Table 1-2: Summary of UWMP Chapters and Corresponding Provisions of the California Water Code ..... 7
Table 2-1: Linda Climatic Data ..... 11
Table 2-2: Summary of Population and Residential Connection Projections ..... 12
Table 2-3: Disadvantaged Community Summary ..... 13
Table 3-1: Historical Water Use by Customer Type, AF ..... 16
Table 3-2: Past, Current, and Future Water Use, AF ..... 17
Table 3-3: Sales to Other Agencies, AF ..... 17

Table 3-4: Past Water Uses and Losses, AF ..... 18
Table 3-5: Future Water Uses and Losses, AF ..... 18
Table 3-6: Base Period Ranges ..... 20
Table 3-7: 2003-2010 Average Annual Daily Use ..... 20
Table 3-8: 10-Year Average Base Daily Per Capita Water Use (Method 1) ..... 21
Table 3-9: 5-Year Average Base Daily Per Capita Water Use (Method 3) ..... 21
Table 3-10: 2020 Water Use Target Method 1 Calculation Summary ..... 22
Table 3-11: 2020 Water Use Target Method 3 Calculation Summary ..... 22
Table 3-12: Minimum 2020 Reduction ..... 23
Table 3-13: Summary of Water Use Target Evaluation ..... 23
Table 3-14: SBX7-7 Projected Water Use ..... 23
Table 3-15: Projected Water Sales, Unaccounted-for System Losses, and Total Water Demand, AF ..... 24
Table 3-16: Low Income Projected Water Demands, AF ..... 25
Table 4-1: Current and Planned Water Supplies, AF ..... 28
Table 4-2: Well Production ..... 29
Table 4-3: Amount of Groundwater Pumped, AF ..... 29
Table 4-4: Projected Amount of Groundwater to be Pumped, AF ..... 29
Table 4-5: Transfer and Exchange Opportunities ..... 31
Table 4-6: Future Water Supply Projects, AF ..... 31
Table 4-7: Existing and Planned Water Sources Available to LCWD, AF ..... 31
Table 4-8: Reliability of Wholesale Supply for Year 2030, AF ..... 32
Table 4-9: Factors Affecting Wholesale Supply ..... 32
Table 4-10: Summary of Opportunities for Water Desalination ..... 32
Table 4-11: Treatment Plant Flows, MGD ..... 34
Table 4-12: Future Wastewater Flows, MGD ..... 35
Table 4-13: Role of Participating Agencies in the Development of the Recycled Water Plan 35
Table 4-14: Estimates of Existing and Projected Wastewater Collection and Treatment ..... 36
Table 5-1: Current and Projected Water Supply Impacts ..... 38
Table 6-1: Supply Reliability for Year 2035, AFY ..... 40
Table 6-2: Basis of Water Year Data Groundwater ..... 40
Table 6-3: Factors Resulting in Inconsistency of Supply ..... 41
Table 6-4: Comparison of Projected Normal Year Supply and Demand ..... 41
Table 6-5: Comparison of Projected Supply and Demand for Single-Dry Year ..... 42
Table 6-6: Projected Multiple-Dry Year Water Supply and Demand Assessment ..... 43
Table 7-1: Summary of DMM's ..... 45
Table 7-2: DMM 1 Review Table ..... 46
Table 7-3: DMM 2 Review Table ..... 47
Table 7-4: DMM 5 Review Table ..... 49
Table 7-5: DMM 6 Review Table ..... 50
Table 8-1: Water Supply Shortage Stages and Conditions ..... 56
Table 8-2: 3-Year Estimated Minimum Water Supply, AF ..... 56
Table 8-3: Mandatory Prohibitions ..... 56
Table 8-4: Water Supply Shortage Stages and Conditions ..... 57
Table 8-5: Summary of Actions and Conditions that Impact Revenue ..... 57

## Table of Contents (Cont'd)

Table 8-6: Summary of Actions and Conditions that Impact Expenditures ..... 58
Table 8-7: Proposed Measures to Overcome Revenue Impacts ..... 58
Table 8-8: Proposed Measures to Overcome Expenditure Impacts ..... 58
Table 8-9: Water-Use Monitoring Mechanisms ..... 60

## List of Figures

Figure 2-1: Linda County Water District Location Map ..... 9
Figure 2-2: Linda Looking East across North Beale Road ..... 10
Figure 4-1: Service Area Boundary and Groundwater Well Location Map ..... 30
Figure 4-2: Aerial Photograph of Linda WWTP ..... 33
Figure 8-1: Historic Flood near Marysville, CA ..... 59

## List of Appendices

A Notice to Review Draft UWMP
B Formal LCWD Board Adoption Resolution
C Comments on Draft UWMP
D Yuba County Water Agency Groundwater Management Plan December 2010
E Linda County Water District Water Quality Consumer Confidence Report
F DMM Cost Effectiveness Spreadsheets
G Water Rate Structure and Connection Fees
H Historical and Projected Population Data
I Draft Water Shortage Contingency Resolution
J State and County Submission Transmittals

# Linda County Water District
# 2010 Urban Water Management Plan
# Contact Sheet

Date plan submitted to the Department of Water Resources: **2 August 2011**

Name of person preparing this plan: **Mr. Brian Davis**

Phone: **(916) 858-2700**

Fax: **(916) 858-2754**

E-mail address: **BrianDavis@KennedyJenks.com**

The Water supplier is a: **Municipal Water Purveyor**

The Water supplier is a: **Retailer**

Utility services provided by the water supplier include: **Water, Wastewater**

Is This Agency a Bureau of Reclamation Contractor? **No**

Is This Agency a State Water Project Contractor? **No**

## Abbreviations

| | |
|---|---|
| AF | Acre-feet |
| AFY | Acre-feet per year |
| Act | Urban Water Management Planning Act |
| Beale AFB | Beale Air Force Base |
| BMPs | Best management practices |
| CCR | California Code of Regulations |
| Cal EMA | California Emergency Management Agency |
| CDPH | California Department of Public Health |
| CDP | Census Designated Place |
| CEQA | California Environmental Quality Act |
| CII | Commercial, industrial, institutional |
| CTR | California Toxics Rule |
| DMM | Demand management measure |
| DWF | Dry weather flow |
| DWR Guidebook | Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan |
| DWR | Department of Water Resources (California) |
| ERP | Emergency response plan |
| ETo | Evapotranspiration |
| gpm | U.S. gallons per minute |
| gpcd | Gallons per capita day |
| LCWD/District | Linda County Water District |
| LUST | Leaky underground storage tank |
| MOU | Memorandum of Understanding (Regarding Urban Water Conservation in California) |
| MGD | Million gallons per day |
| MGY | Million gallons per year |
| N/A | Not available |
| NPDES | National Pollutant Discharge Elimination System |

| | |
|---|---|
| NPV | Net present value |
| O&M | Operation and maintenance |
| OPUD | Olivehurst Public Utility District |
| p/e | Percolation/evaporation |
| SACOG | Sacramento Area Council of Governments |
| SBX7-7 | Senate Bill X7-7, The Water Conservation Act of 2009 |
| SDWA | Safe Drinking Water Act |
| SIP | State Implementation Plan |
| SWP | State Water Project |
| SYGB | South Yuba Groundwater Basin |
| UBC | Uniform Building Code |
| ULFT | Ultra-low-flush-toilet |
| USBR | United States Bureau of Reclamation |
| US EPA | United States Environmental Protection Agency |
| UWMP | Urban Water Management Plan |
| VOCs | Volatile organic compounds |
| WRCC | Western Regional Climate Center |
| WWTP | Wastewater Treatment Plant |
| YCWA | Yuba County Water Agency |

# Section 1: Introduction

This Urban Water Management Plan (UWMP) has been prepared by Linda County Water District (LWCD/District) in accordance with the Urban Water Management Planning Act Division 6, Part 2.6, of the California Water Code, Sections 10608 through 10657 as last amended by Senate Bill No. 7 (SBX7-7), the Water Conservation Act of 2009. The original bill requiring an UWMP to be submitted was signed into law in 1983. The Water Conservation Act of 2009, which became law in November 2009, requires increased emphasis on water demand management and requires the State to achieve a 20 percent reduction in urban per capita water use by December 31, 2020.

Urban water suppliers with more than 3,000 service connections or water use of more than 3,000 acre-feet per year (AFY) are required to submit an UWMP every five years to the California Department of Water Resources (DWR). The UWMP typically must be submitted by December 31 of years ending in zero and five, however SBX7-7 extended the 2010 UWMP deadline to July 1, 2011 to provide for development by DWR of required evaluation methodologies for determining conservation baselines and goals. LCWD prepared its first UWMP in 2005 as they surpassed the 3,000 connection benchmark in 2004. This 2010 UWMP is an update to the 2005 Plan.

LCWD water use reduction targets were developed based on Method 3 as described by SBX7-7 and supplemental guidance from DWR.

The portion of the law that describes the purpose and intent of the UWMP states the following:

*Section 10610.2*

*(a) The Legislature finds and declares all of the following:*

*(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.*

*(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.*

*(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.*

*(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.*

*(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.*

*(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.*

*(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.*

*(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.*

*(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.*

*(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.*

*Section 10610.4. The Legislature finds and declares that it is the policy of the state as follows:*

| | |
|---|---|
| *(a)* | *The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.* |
| *(b)* | *The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.* |
| *(c)* | *Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.* |

## 1.1 Benefits

This UWMP will serve as a source of information for potential water supply assessments and written verification of water supply. This UWMP also serves as:

- A long-range planning document for water supply,
- Source data for development of a regional water plan,
- A component in Integrated Regional Water Management planning, and
- An informational source for cities and counties as they prepare their General Plans, including Linda, Olivehurst, Marysville, Yuba County Water Agency and Yuba County.

## 1.2 Scope

The purpose of the UWMP is to create a planning document to assist LCWD in evaluating future LCWD projects and to meet the requirements of the UWMP Act and SBX7-7. This UWMP compares past, current and projected District water supplies and demands; identifies a hypothetical three-year worst case drought scenario and its effect on District urban water supplies; discusses existing and anticipated demand management measures; evaluates a water shortage contingency plan; and reviews District potential future of recycled water.

This update also incorporates the requirements detailed in The Water Conservation Act of 2009 by evaluating LCWD's baseline per capita water use and setting future water use targets to meet the twenty percent reduction by 2020 as set forth by SBX7-7.

## 1.3 Notice of Document Use

LCWD is committed to implementing the projects, and plans provided within this document. However, it is important to note that execution of the plan is contingent upon the regulatory limitations and approval of state agencies. Additionally, this document merely presents the water supply, reliability, and conservation programs known and in effect at the time of adoption of this plan. The District shall not be responsible for changed or unforeseen conditions affecting any of the above factors after adoption of the plan.

## 1.4 Public Participation

The 2010 UWMP requirements detail specific instructions on the inclusion of public participation including:

*Section 10642*

*Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

The public was invited to review the plan in Draft form and make comments. The Draft UWMP was presented for public comment on June 13 2011. A copy of the public notice can be found in Appendix A.

## 1.5 Agency Coordination

The 2010 UWMP requirements for Agency Coordination include specific timetables and requirements as presented in this chapter. The required elements of the Act are as follows:

*Section 10620*

*(d)(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.*

*Section 10621*

*(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.*

*Section 10635*

*(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.*

*Section 10642*

*Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.*

LCWD lies within the unincorporated town of Linda and is both the sole water retailer and supplier for that area of Yuba County. Considering Yuba County may utilize this UWMP for planning purposes. Other communities surrounding LCWD within Yuba County include the City of Marysville, the City of Wheatland, Olivehurst Public Utility District (OPUD), Yuba County Water District, and Beale Air Force Base (Beale AFB). Yuba County was contacted and notified of the adoption schedule of this 2010 UWMP update. Comments that were received by both the public and water providers are included in Appendix C. Table 1-1 provides the agencies with which coordination occurred while preparing this 2010 UWMP.

Table 1-1: Coordination with Agencies

| Agency | Contacted for Assistance | Participated in UWMP Development | Draft Copy Available for Review | Attended Public Meetings | Commented on the Draft | Sent Notice of Intent to Adopt | Not Involved / No Information |
|---|---|---|---|---|---|---|---|
| Yuba County | | | ✓ | | | ✓(2) | ✓ |
| Yuba County Water Agency | ✓ | ✓ | ✓ | | | | |
| Public | | | ✓ | | | ✓(2) | ✓ |

Notes:
1. This table is based on DWR's Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan (DWR Guidebook) Table 1.
2. Notice of intent to adopt is included in Appendix A.

## 1.6 Plan Adoption

The LCWD Board adopted the plan by resolution on 11 July 2011. See Appendix B for formal adoption notice.

The adopted plan is available for public review at LCWD's office as required by Section 10645. Copies of the plan were submitted to DWR, cities and counties within the service area, the State Library, and other applicable institutions within 30 days of adoption as required by Section 10644.

## 1.7 Resource Maximization/Import Minimization Plan

*Section 10620*

*(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.*

This subsection will provide a discussion on how LCWD manages its water resources. Currently LCWD does not import water from any other areas and is fully self servicing. The steps that LCWD takes to ensure that they maximize their water resources are the following:

1. Have fully metered accounts,

2. Participation in the Regional Groundwater Management Plan,
3. Participated in regional recycled water planning,
4. Actively expanding system capacity to meet population growth, and
5. Start implementing DMMs (Demand Management Measures) as the agency grows and gains more services.

These steps will ensure LCWD will have a reliable water supply for the future growth scenario presented in Section 2 of this plan.

## 1.8 Appropriate Level of Planning for Size of Agency

*Section 10631*

*(a) It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied*

LCWD is a small water supplier and exceeded 3,000 customers in late 2004. Due to a concern for water supply, LCWD has implemented DMMs that are cost effective and as budget allows. As the agency grows, with increasing staff and budget, LCWD will increase its efforts to reduce demand. Section 7 of this report more thoroughly describes DMMs for LCWD.

LCWD is completely dependent on groundwater supply and will include adequate planning activities to maintain an adequate supply as the agency grows.

## 1.9 UWMP Preparation

LCWD prepared this UWMP with the assistance of its consultant, Kennedy/Jenks Consultants, as permitted by the following section of the Act.

*Section 10620*

*(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.*

During the preparation of the UWMP, documents that have been prepared over the years by LCWD and other entities were reviewed and information from those documents incorporated, as applicable, into this UWMP. The list of references is provided at the end of this report.

## 1.10 UWMP Implementation

*Section 10643*

*An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.*

LCWD is committed to the implementation of this UWMP concurrent with the scheduled activities identified herein as required by Section 10643 of the Act. LCWD is able to properly plan and implement the actions identified in this document and other key planning efforts to proactively address water supply reliability challenges.

## 1.11 Resource Optimization

*Section 10643*

*(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.*

LCWD understands the limited nature of water supply in California and is committed to optimizing its available water resources. This commitment is demonstrated through LCWD's use of water management tools to promote the efficient use of water supplies from local sources, wherever feasible. Additionally, LCWD takes efforts to procure local reliable water supplies wherever feasible and cost effective.

## 1.12 Content of the UWMP

This UWMP addresses all subjects required by Section 10631 of the Act as defined by Section 10630, which permits "levels of water management planning commensurate with the numbers of customers served and the volume of water supplied." All applicable sections of the Act are discussed in this UWMP, with chapters of the UWMP and Guidebook Checklist cross-referenced against the corresponding provision of the Act in Table 1-2.

Table 1-2: Summary of UWMP Chapters and Corresponding Provisions of the California Water Code

| Section | Corresponding Provisions of the Water Code | | Guide Book Checklist No. |
|---|---|---|---|
| Section 1: Plan Preparation | 10642 | Public participation | 55 and 56 |
| | 10643 | Plan implementation | 58 |
| | 10644 | Plan filing | 59 |
| | 10645 | Public review availability | 60 |
| | 10620 (a)–(e) | Coordination with other agencies; document preparation | 4 |
| | 10621 (a)–(c) | City and county notification; due date; review | 6 and 54 |
| | 10621 (c) | UWMP adoption | 7 and 57 |
| | 10620 (f) | Resource optimization | 5 |
| Section 2: System Description | 10631 (a) | Area, Demographics, Population, and climate | 8-12 |
| Section 3: Water Use | 10608 | Urban water use targets | 1 |
| | 10631 (e), (k) | Water use, data sharing | 25 and 34 |
| | 10631 (k) | Data to wholesaler | 33 |
| Section 4: Water Supply | 10631 (b)–(d), (h), (k) | Water sources, reliability of supply, transfers and exchanges, supply projects, data sharing | 13-21, 24, 30, 33 |
| | 10631 (i) | Desalination | 31 |
| | 10633 | Recycled water | 44-51 |
| Section 5: Water Quality | 10634 | Water quality impacts on reliability | 52 |
| Section 6: Water Service Reliability | 10631 (c) (1) | Water service reliability, and reliability of supply | 22 |
| | 10631 (c) (2) | Factors resulting in inconsistency of supply | 23 |
| | 10635 (a) | Reliability during normal, dry, and multiple dry years | 53 |
| Section 7: Conservation Program and Demand Management Measures | 10631 (f)–(g), (j), 10631.5, 10608.26 (a), 10608.36 | Conservation Program and DMM SBX7-7 water use reduction plan | 2, 26-29, 32 |
| Section 8: Water Shortage Contingency Plan | 10632 | Water shortage contingency plan | 35-43 |

# Section 2: Supplier Service Area Description

This section summarizes LCWD's service area and presents an analysis of available demographics, population growth projections, and climate data to provide the basis for estimating future water requirements.

The water system description requirements are detailed in the following section of the Act:

*Section 10631*

*(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

## 2.1 Area

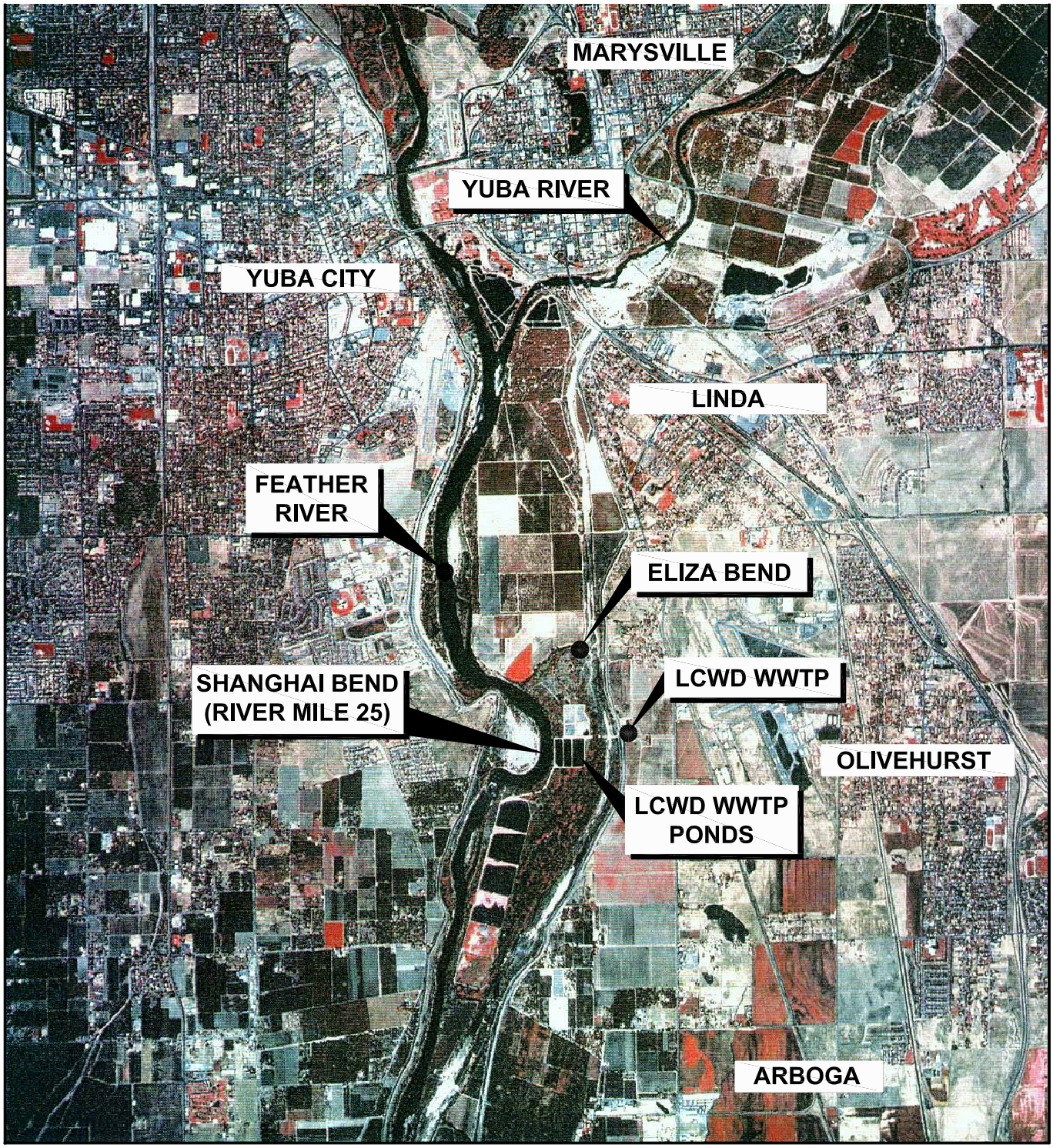
LCWD is located southeast of the confluence of the Feather River and Yuba River in Yuba County. . Most of the agricultural activities taking place in the County are located in the valley floor. The common water management issues of this area include frequent flooding, urban growth, conversion of agricultural lands to residential areas, and wastewater discharge.

The valley floor portion of Yuba County is bordered by watercourses on three sides and bisected by the Yuba River. Within the County boundary, water purveyors currently utilize both surface water and groundwater to meet demand.

The economy of the region is largely driven by agricultural and agricultural related activities. Urban communities within the region are generally small and include the communities of Marysville, Linda, Olivehurst, and Wheatland.

## 2.2 Linda County Water District

The service area shown in Figure 2-1 is bordered by Simpson-Dantoni Road to the North, the Feather River to the West, Earle Road to the South, and Beale Air Force Base to the East.




J:\2011\1170001.02_LCWD_UWMP\09-Reports\9.09-Reports\Figures\2010 FIGURES\F01_rev2.dwg Aug 02, 2011 - 11:46am

**Kennedy/Jenks Consultants**

N

NO SCALE

LINDA COUNTY WATER DISTRICT
URBAN WATER MANAGEMENT PLAN

LOCATION MAP

June 2011
K/J 1170001*02
Figure 2-1

## 2.3 Linda County Water District Background and Area History

LCWD was formed in 1955 to provide treated potable water and fire protection for the health and safety of the unincorporated community of Linda. In 1960, the District expanded its services to include wastewater collection, treatment, and disposal. The District serves approximately 18,800 people through about 4,000 service connections. The District's general role in water planning is in the capacity as a water purveyor and wastewater treatment agency.

**Figure 2-2: Linda Looking East across North Beale Road**

## 2.4 Climate

Climate in Linda is typically mild. It does not snow in the winter, summers are usually mildly hot and there is very little rain from May to October. Table 2-1 shows evapotranspiration (ETo), average rainfall, and average maximum temperatures for the unincorporated community of Linda.

Table 2-1: Linda Climatic Data

| | Average Max. Temperature[1] (°F) | Average Min. Temperature[1] (°F) | Average Precipitation[1] (in.) | Average ETo[2] (in.) |
|---|---|---|---|---|
| January | 54.1 | 37.7 | 4.01 | 1.00 |
| February | 60.4 | 41.3 | 3.73 | 1.66 |
| March | 66.0 | 44.0 | 2.88 | 3.12 |
| April | 73.0 | 47.6 | 1.53 | 4.72 |
| May | 81.2 | 52.7 | 0.75 | 6.07 |
| June | 89.6 | 58.1 | 0.22 | 7.45 |
| July | 96.3 | 61.3 | 0.03 | 8.46 |
| August | 94.6 | 59.3 | 0.06 | 7.62 |
| September | 89.2 | 56.2 | 0.34 | 5.70 |
| October | 79.0 | 49.9 | 1.21 | 4.06 |
| November | 65.2 | 42.2 | 2.44 | 1.97 |
| December | 55.1 | 38.0 | 3.76 | 1.07 |
| **Annual** | 75.3 | 49.0 | 20.96 | 52.9 |

Notes:

1. Western Regional Climate Center, Marysville, CA (045385), Data 2/1/1897 – 10/31/2007
2. California Irrigation Management Information System, Browns Valley Station 84, Data since April 1989

## 2.5 Population Projections

The population of the area served by the LCWD water system is the defined service area population for this UWMP. Population projections were developed for LCWD using Sacramento Area Council of Governments (SACOG) and 2000 U.S. Census data. During development of the population projections the 2000 U.S. Census data was used as the 2010 U.S. Census data was not yet available.

### 2.5.1 Population Projection Development Methodology

The LCWD service area boundaries contain multiple Traffic Analysis Zones (TAZs) and census tracts related to SACOG and 2000 Census data respectively. The TAZ and census tract boundaries do not coincide exactly with the service area boundaries, therefore, the population projection analysis consisted of the following:

- superimposing service area boundaries over TAZ and census tract boundaries,
- identifying the applicable overlapping TAZ and census tracts, and
- developing a percentage estimate for each overlapping area.

Appendix H Table H-1 lists the TAZs and census tracts with a corresponding estimate of what percent of each TAZ and census tract lies within the LCWD service area.

### 2.5.2 Growth Rates and Projections

Census data was used to estimate the population within the LCWD service area in 2000 while SACOG data was used to project the population through 2035. According to SACOG

projections, the annual growth rate from 2010 to 2035 for the LCWD service area is approximately 1.48 percent. This growth rate was applied to project the number of water connections through 2035. The District's first year with reliable connection data is 2003. Therefore, the service area population was iterated between 2000 Census data and 2005 SACOG projections to calculate the 2003 service area population. An average persons-per-connection ratio was determined using 2003 and 2005 data. This persons per connection number was then applied to the projected connections to calculate the projected population through 2035 as shown in Table 2-2.

Table 2-2: Summary of Population and Residential Connection Projections

| Year | Residential Connections | Service Area Population |
|---|---|---|
| 2005 | 3,308 | 14,377 |
| 2010 | 3,851 | 18,808 |
| 2015 | 4,144 | 20,237 |
| 2020 | 4,458 | 21,774 |
| 2025 | 4,797 | 23,429 |
| 2030 | 5,161 | 25,208 |
| 2035 | 5,554 | 27,124 |

Notes:

3. This table is based on the DWR Guidebook Table 2.
4. Annual growth rate of 1.48% is based on SACOG population projections.

## 2.6 Other Demographic Factors

This section presents background information concerning LCWD's service area.

### 2.6.1 Housing Density

LCWD's housing density has historically been considered low with four or less houses per acre. Recent developments have been constructed with approximately six houses per acre. This will increase the water for indoor usage, while decreasing the water demand for irrigation on a per acre basis.

### 2.6.2 Future Commercial Development

It is anticipated LCWD will need equivalent commercial development with the increase in residential housing, however no current developments planned.

### 2.6.3 Limited Industrial Uses

LCWD does not have any significant industrial water users. The district mainly supplies single and multifamily residential customers.

### 2.6.4 Agricultural and Landscape Connections

LCWD has limited agricultural or landscape water use. There are agricultural areas surrounding LCWD, but they either have their own water supply source or purchase their water from an

agricultural water purveyor. Domestic water is provided for some parks and beautification projects in the area but amounts to less than 0.3 percent of the total for water within the District's distribution system.

### 2.6.5 Disadvantaged Community Status

*Section 79505.5*

*"Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.*

*California Department of Health defines a "Severely disadvantaged community" as a community with a median household income less than 60 percent of the statewide average.*

*24 C.F.R. Section 5.603 - Title 24: Housing and Urban Development*

*Extremely low income family. A family whose annual income does not exceed 30 percent of the median income for the area, as determined by HUD, with adjustments for smaller and larger families, except that HUD may establish income ceilings higher or lower than 30 percent of the median income for the area if HUD finds that such variations are necessary because of unusually high or low family incomes.*

*Low income family. A family whose annual income does not exceed 80 percent of the median income for the area, as determined by HUD with adjustments for smaller and larger families, except that HUD may establish income ceilings higher or lower than 80 percent of the median income for the area on the basis of HUD's findings that such variations are necessary because of unusually high or low family incomes.*

Since Linda is an unincorporated area it is identified as a census designated place (CDP). LCWD's service area was evaluated to determine its status as a disadvantaged community shown in Table 2-3.

Table 2-3: Disadvantaged Community Summary

| | Median Household Income, Dollars | |
|---|---|---|
| **Area** | **1999**[3] | **2009 Inflation Adjusted** |
| Linda CDP, California[1] | 22,753 | 36,112 |
| State of California[2] | 47,493 | 60,392 |
| Percent | **47.9%** | **59.8%** |

Notes:

1. United States Census, Population Projections Linda CDP
2. United States Census, Population Projections California
3. 2000 Census Data is reported in 1999 Dollars

Based on U.S. Census data for 1999 and projected 2009 inflation adjusted values, LCWD is considered a disadvantaged community as defined by the California Water Code and a severely disadvantaged community as defined by the California Department of Health. As a disadvantaged community LCWD is able to apply for additional grants and loans, even if the District does not comply with SBX7-7 (which will be discussed in later sections).

## 2.7 Past Drought, Water Demand, and Conservation Information

LCWD is exclusively on groundwater and there has been little impact on supply resulting from drought. Historical information indicates demand has increased by 5 percent each year. The demand has increased concurrently with population increases. LCWD customers have not historically experienced water shortages.

New developments must comply with Yuba County requirements for water conservation. All LCWD customer usage is metered and customers are charged according to the volume of water consumed. Therefore, customers are conscious of how much water they use and can identify overuse by monitoring their water bills. LCWD could use water meter data to identify overuse during a prohibition period.

# Section 3: Water Use

Section 10631 (e) of the Act requires that an evaluation of water use be performed for LCWD. The Act states the following:

*Section 10631*

*(e)*

*(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water- use sectors including, but not necessarily limited to, all of the following uses:*

- *(A) Single-family residential*
- *(B) Multifamily*
- *(C) Commercial*
- *(D) Industrial*
- *(E) Institutional and governmental*
- *(F) Landscape*
- *(G) Sales to other agencies*
- *(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof*
- *(I) Agricultural.*

*(2) The water-use projections shall be in the same five-year increments described in subdivision (a).*

In addition, Section 10631 (k) directs urban water suppliers to provide existing and projected water-use information to wholesale agencies from which water deliveries are obtained. The Act states the following:

*Section 10631*

*(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water-use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c), including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.*

In conjunction with projecting total water demand, each urban water retail supplier must develop urban water use targets and an interim urban water use target in accordance with SBX7-7. SBX7-7 amends the Act requiring statewide water savings of 20 percent by the year 2020. The bill sets specific methods for calculating both the baseline water usage and water use targets in gallons per capita day (gpcd).

*Section 10608.20*

*(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.*

This section presents an analysis of water use data with the resulting projections for future water needs and water use targets in accordance with SBX7-7 for LCWD.

## 3.1 Historical Water Use

Historical water use data from 2003 to 2010 was analyzed in order to provide an overview of water use trends for the District. Table 3-1 shows the historical water use by customer type. Data for water use by category is not available before 2003.

Table 3-1: Historical Water Use by Customer Type, AF

| Year | Single Family Residential | Multi Family | Commercial/ Institutional | Industrial | Landscape Irrigation | Other | Agricultural Irrigation | Total |
|---|---|---|---|---|---|---|---|---|
| 2003 | 1,229 | 872 | 357 | 0 | 46 | 22 | 0 | 2,526 |
| 2004 | 1,380 | 910 | 385 | 0 | 63 | 25 | 0 | 2,763 |
| 2005 | 1,389 | 733 | 284 | 0 | 81 | 3 | 0 | 2,490 |
| 2006 | 1,719 | 799 | 351 | 0 | 157 | 3 | 0 | 3,029 |
| 2007 | 1,880 | 829 | 367 | 0 | 182 | 6 | 0 | 3,264 |
| 2008 | 2,034 | 828 | 376 | 0 | 204 | 9 | 0 | 3,451 |
| 2009 | 1,822 | 746 | 332 | 0 | 171 | 2 | 0 | 3,073 |
| 2010 | 1,625 | 675 | 297 | 0 | 177 | 7 | 0 | 2,781 |

## 3.2 Projected Water Use

Growth projections for the number of service connections and water use were calculated for the year 2010 through 2035 in five-year increments. Future water demands were estimated using connection information and historical usage. The projected population information and historical water use data was used to project future water use by connection type. The projections for the number of service connections, and the resulting water demand are provided in Table 3-2 by water use type.

Table 3-2: Past, Current, and Future Water Use, AF

| | Water Use Sectors | Single Family Residential | Multifamily Residential | Commercial / Institutional | Industrial | Landscape Irrigation | Other | Agricultural Irrigation | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2005 | # Accounts | 2,969 | 339 | 163 | 0 | 12 | 3 | 0 | 3,486 |
| | Deliveries (AF) | 1,389 | 733 | 284 | 0 | 81 | 3 | 0 | 2,490 |
| 2010 | # Accounts | 3,527 | 324 | 186 | 0 | 37 | 2 | 0 | 4,076 |
| | Deliveries (AF) | 1,625 | 675 | 297 | 0 | 177 | 7 | 0 | 2,781 |
| 2015 | # Accounts | 3,795 | 349 | 200 | 0 | 40 | 2 | 0 | 4,386 |
| | Deliveries (AF) | 1,989 | 849 | 395 | 0 | 209 | 9 | 0 | 3,450 |
| 2020 | # Accounts | 4,083 | 375 | 215 | 0 | 43 | 2 | 0 | 4,719 |
| | Deliveries (AF) | 2,140 | 913 | 425 | 0 | 225 | 9 | 0 | 3,712 |
| 2025 | # Accounts | 4,393 | 404 | 232 | 0 | 46 | 2 | 0 | 5,077 |
| | Deliveries (AF) | 2,302 | 982 | 457 | 0 | 242 | 10 | 0 | 3,994 |
| 2030 | # Accounts | 4,727 | 434 | 249 | 0 | 50 | 3 | 0 | 5,463 |
| | Deliveries (AF) | 2,477 | 1,057 | 492 | 0 | 260 | 11 | 0 | 4,297 |
| 2035 | # Accounts | 5,086 | 467 | 268 | 0 | 53 | 3 | 0 | 5,878 |
| | Deliveries (AF) | 2,665 | 1,137 | 529 | 0 | 280 | 12 | 0 | 4,624 |

Notes:

1. This table is based on the DWR Guidebook Tables 3 through 7.
2. This table is based on calendar year.
3. LCWD reached 3,000 connections in 2004. 2003 is the earliest data available for use.
4. All accounts are metered.
5. There are currently no industrial or agricultural irrigation connections within the District.

## 3.3 Sales to Other Agencies

LCWD does not provide any water to other agencies; therefore, Table 3-3 has intentionally been left blank.

Table 3-3: Sales to Other Agencies, AF

| Water Distributed | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Note:

1. This table is based on the DWR Guidebook Table 9.

## 3.4 Other Water Uses and Unaccounted-for Water

In order to estimate total water demand, other water uses, as well as any water lost during conveyance, must be added to the customer demand. California regulation requires water

suppliers to quantify any additional water uses not included as a part of customer type records. There are no other water uses in addition to those already reported.

Unaccounted-for water must be incorporated when projecting total water demand. Unaccounted-for water is defined as the difference between annual production and supply and annual sales. Included in the unaccounted-for water are system losses (due to leaks, or inaccurate meters), and water used in operations. LCWD has historically operated with system losses averaging 21 percent of the total amount of water pumped. Table 3-4 provides a summary of past unaccounted-for water for LCWD, the projected water loss is the average of the historical water loss as a percent. The projected water loss up to 2035 is shown in Table 3-5.

Table 3-4: Past Water Uses and Losses, AF

| Water-Use Type | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Total Metered Deliveries | 2,490 | 3,029 | 3,264 | 3,451 | 3,073 | 2,781 |
| Sales to Other Agencies | N/A | N/A | N/A | N/A | N/A | N/A |
| Pumped To Waste | 6 | 8 | 7 | 8 | 1 | 4 |
| Total Flushing | 17 | 26 | 13 | 12 | 2 | 0 |
| System Losses | 543 | 844 | 920 | 829 | 844 | 905 |
| Total Amount Pumped | 3,056 | 3,907 | 4,203 | 4,300 | 3,921 | 3,690 |

Table 3-5: Future Water Uses and Losses, AF

| Water-Use Type | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Total Metered Deliveries | 3,450 | 3,712 | 3,994 | 4,297 | 4,624 |
| Sales to Other Agencies | N/A | N/A | N/A | N/A | N/A |
| Pumped To Waste | 5 | 4 | 4 | 4 | 4 |
| Total Flushing | 7 | 6 | 5 | 4 | 3 |
| System Losses | 928 | 998 | 1,073 | 1,154 | 1,241 |
| Total Pumped | 4,390 | 4,720 | 5,076 | 5,460 | 5,872 |

Notes:

1. This table is based on the DWR Guidebook Table 10.
2. This table is based on calendar year.

## 3.5 Water Use Targets

This section includes documentation of the water use targets commensurate with enactment of SBX7-7. The 2010 UWMP update cycle is the first in which these targets have been documented. The projected water use for each urban water supplier is required to be reduced by a total of up to 20 percent by the year 2020 from a calculated baseline gpcd as required by SBX7-7. The steps described throughout this section follow the guideline methodologies developed by DWR over the past year, as documented in Section D of the DWR Guidebook issued March 2011. The three steps to determine the 2020 water use target are as follows:

- Step 1 – Calculate the baseline per capita water use, using the required methodologies.

- Step 2 – Calculate the per capita reduction for the four methodologies (including the minimum reduction target – which is a provision included to ensure all agencies achieve a minimum level of water savings).

- Step 3 – Select the target reduction methodology and set interim (2015) and compliance (2020) water use targets. The chosen methodology is the responsibility of the water supplier and may be changed in 2015.

The Act now stipulates that the state shall review the progress made towards reaching the statewide water savings targets as reported in the 2015 UWMP updates. Currently, no single urban water supplier is required to conserve more than 20 percent, however there are provisions in the law that could require additional conservation after 2015 if it is found that the program is not on track to reach 20 percent statewide water savings by 2020.

### 3.5.1 Baseline Per Capita Water Use

The first step in the process of determining the water use target is calculation of the baseline per capita water use (baseline gpcd). The following three baseline gpcd calculations identified in SBX7-7 were evaluated for LCWD:

1. Baseline Method 1 - Average water use over a continuous 10-year period ending no earlier than 31 December 2004 and no later than 31 December 2010.

2. Baseline Method 2 - For retailers with at least 10 percent of 2008 demand served by recycled water (either retail or wholesale-provided), this calculation may be extended to include an additional five years ending no earlier than 31 December 2004 and no later than 31 December 2010.

3. Baseline Method 3 - Estimate of average gross water use reported in gpcd and calculated over a continuous five-year period ending no earlier than 31 December 2007 and no later than 31 December 2010.

In order to calculate the baseline gpcd, historical population within LCWD was estimated. Annual population between the years 2003 and 2010 was calculated using the 2000 U.S. Census population based on the projections described in Section 2. The number of residential connections (single and multifamily) for each year was tabulated based on records provided by LCWD. Data for water use by connection type, and total residential connection data is not available before 2003. According to the Methodologies for Calculating baseline and Compliance Per Capita Water Use by DWR, “If gross water use and/or population are not available for the full base period, the water supplier shall calculate base daily per capita water use for the maximum number of years for which data is available,” therefore an 8 year base period was used.

The baseline gpcd water use methods 1 and 3 were evaluated using water supply data for the years ending 31 December 2004 through 31 December 2010. The base water use was calculated for each year commencing with 2003. LCWD does not currently receive any recycled water; therefore method 2 is not applicable. Table 3-6 below presents the base period ranges, and total water deliveries; in order to determine the number of years that can be included in the base period range. Also shown are the actual start and end years for the selected base period range.

Table 3-6: Base Period Ranges

| Base | Parameter | Value | Units |
|---|---|---|---|
| 10-year base period[2] | 2010 total water deliveries | 3,690 | AFY |
| | 2010 total volume of delivered recycled water | 0 | AFY |
| | 2010 recycled water as a percent of total deliveries | 0 | Percent |
| | Number of years in base period | 8[2] | Years |
| | Year beginning base period range | 2003 | |
| | Year ending base period range | 2010 | |
| 5-year base period | Number of years in base period | 5 | Years |
| | Year beginning base period range | 2006 | |
| | Year ending base period range | 2010 | |

Notes:
1. Table format based on DWR Guidebook Table 13.
2. LCWD reached 3,000 service connections in 2004. 2003 is the earliest data available for use.

Data used to calculate the average annual daily per capita water use in gpcd is provided in Table 3-7.

Table 3-7: 2003-2010 Average Annual Daily Use

| Calendar Year | Estimated System Population | AFY | GPD | Annual Daily per Capita Water Use, gpcd |
|---|---|---|---|---|
| 2003[2] | 14,017 | 2,526 | 2,436,225 | 174 |
| 2004[2] | 14,197 | 2,763 | 3,147,111 | 222 |
| 2005 | 14,377 | 2,490 | 2,728,660 | 190 |
| 2006 | 17,314 | 3,029 | 3,488,114 | 201 |
| 2007 | 18,408 | 3,264 | 3,752,593 | 204 |
| 2008 | 18,535 | 3,451 | 3,838,926 | 207 |
| 2009 | 18,691 | 3,073 | 3,500,173 | 187 |
| 2010 | 18,808 | 2,781 | 3,294,619 | 175 |

Notes:
1. Table format based on DWR Guidebook Tables 14 and 15.
2. LCWD reached 3,000 service connections in 2004. 2003 is the earliest data available for use.

Since LCWD does not have historical data for a complete 10-year period there is one 8-year average available for LCWD to select which is presented in Table 3-8; and the 5-year averages are shown in Table 3-9.

Table 3-8: 10-Year Average Base Daily Per Capita Water Use (Method 1)

| 10-Year Period | Average Base Daily per Capita Water Use (gpcd) |
|---|---|
| 2003-2010[(2)] | 195 |

Notes:

1. Table format based on DWR Guidebook Table 14.
2. LCWD reached 3,000 service connections in 2004. 2003 is the earliest data available for use. The 10 year period has 8 years of data.

Table 3-9: 5-Year Average Base Daily Per Capita Water Use (Method 3)

| 5-Year Period | Average Base Daily per Capita Water Use (gpcd) |
|---|---|
| 2003-2007[(2)] | 198 |
| 2004-2008 | 205 |
| 2005-2009 | 198 |
| 2006-2010 | 195 |

Notes:

1. Table format based on DWR Guidebook Table 15.
2. LCWD reached 3,000 service connections in 2004. 2003 is the earliest data available for use.

The 2003-2010 10-year maximum average of 195 gpcd and 2006-2010 5-year maximum average base daily gpcd usages of 205 gpcd were selected.

### 3.5.2 Urban Water Use Target Calculation

Retail suppliers must identify their demand reduction targets by utilizing one of four compliance methods identified in SBX7-7. The four compliance methods are as follows:

- Compliance Method 1 – 80 percent of baseline gpcd water use.
- Compliance Method 2 – The sum of the following performance standards: indoor residential use (provisional standard set at 55 gpcd); plus landscape use, including dedicated and residential meters or connections equivalent to the State Model Landscape Ordinance (70 percent of reference ETo; plus 10 percent reduction in baseline commercial, industrial institutional (CII) water use by 2020.
- Compliance Method 3 – 95 percent of the applicable state hydrologic region target as identified in the 2020 Conservation Plan (DWR, 2010).
- Compliance Method 4 – A provisional method identified and developed by DWR through a public process released 16 February 2011, which aims to achieve a cumulative statewide 20 percent reduction. The method assumes water savings will be obtained through metering of unmetered water connections and achieving water conservation measures in three water use categories: (1) indoor residential, (2) landscape, water loss and other unaccounted for water and (3) commercial, industrial and institutional (CII). LCWD will not be bound to use this new method if it results in a target that is higher than 20 percent.

LCWD elected to evaluate Methods 1 and 3 for selecting urban water use targets for the 2010 plan. The following provides an explanation of the target calculations; a summary of the interim and compliance water use targets is provided in the following section.

#### 3.5.2.1 Compliance Method 1 Calculation Summary

The Method 1 2020 water use target was calculated by multiplying the baseline daily gpcd by 80 percent. A 20 percent reduction in baseline use would require a 2020 reduction of 39 gpcd as shown in Table 3-10. The 2015 interim target would be 176 gpcd and compliance target is 156 gpcd. Table 3-10 provides a summary of the reduction requirements.

Table 3-10: 2020 Water Use Target Method 1 Calculation Summary

| Description | Units | 10 Year Baseline[1] | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|---|---|
| Percent Reduction | % | N/A | 10% | 20% |
| Per Capita Water Use | gpcd | 195 | 176 | 156 |

Note:

1. Based on the 10 year period of 2003-2010, which is only 8 years.

#### 3.5.2.2 Compliance Method 3 Calculation Summary

Method 3 2020 water use target was calculated by multiplying the respective hydrologic region target by 95 percent. LCWD is located in Sacramento Region 5, which has a hydrologic region target of 176 gpcd. Table 3-11 presents the results of the Method 3 calculation:

Table 3-11: 2020 Water Use Target Method 3 Calculation Summary

| Description | Units | 10 Year Baseline[1] | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|---|---|
| Percent Reduction | % | N/A | 7% | 14% |
| Per Capita Water Use | gpcd | 195 | 181 | 167 |

Note:

1. Based on the 10 year period of 2003-2010, which is only 8 years.

#### 3.5.2.3 Minimum Compliance Reduction Target

Systems with a baseline per capita water use of greater than 100 gpcd must calculate a minimum water use reduction, in which the 2020 water use target cannot exceed. The minimum water use reduction compliance target is 95 percent of the 5-year rolling average base daily per capita water use (ending no earlier than December 31, 2007, and no later than December 31, 2010). The minimum 2020 reduction compliance target for LCWD is 205 gpcd, as presented in Table 3-12 below:

Table 3-12: Minimum 2020 Reduction

| Description | Units | 5-Yr Average[1] | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|---|---|
| Minimum allowable 2020 Target | gpcd | 205 | 200 | 195 |

Note:

1. Based on the highest gpcd year range of 2003-2007.

The minimum compliance target is not triggered by either Method 1 or Method 3 and therefore cannot be used, and is presented only as a reference.

### 3.5.3 Interim and Compliance Water Use Targets

The interim and compliance water use targets are provided per Section 10608.20(e) of the Act. Compliance Method 3 was selected by LCWD because it is more conservative. **As a result, the 2020 SBX7-7 compliance target for LCWD is 167 gpcd and the 2015 interim water use target is 181 gpcd**.

A summary of the compliance methods and water use targets evaluation is provided in Table 3-13 below. Table 3-14 presents the projected water use to achieve SBX7-7 compliance.

Table 3-13: Summary of Water Use Target Evaluation

| Description | Per Capita Water Use (gpcd) | 2020 Percent Reduction | Minimum Reduction Triggered |
|---|---|---|---|
| Baseline Per Capita Water Use | 195 / 205 | -- | N/A |
| Method 1 2020 Compliance Target | 156 | 20 | No |
| Method 2 2020 Compliance Target | Not Reviewed | | N/A |
| Method 3 2020 Compliance Target | 167 | 14 | No |
| Method 4 2020 Compliance Target | Not Reviewed | | N/A |
| Minimum Reduction 2020 Compliance Target | 195 | 5 | N/A |

Table 3-14: SBX7-7 Projected Water Use

| Year | Active Service Connections | Residential Connections | Population | Total Usage | | |
|---|---|---|---|---|---|---|
| | | | | gpcd | gpd | AFY |
| 2010 | 4,076 | 3,851 | 18,808 | 175 | 3,294,619 | 3,690 |
| 2015 | 4,386 | 4,144 | 20,237 | 181 | 3,665,106 | 4,105 |
| 2020 | 4,719 | 4,458 | 21,774 | 167 | 3,640,677 | 4,078 |
| 2025 | 5,077 | 4,797 | 23,429 | 167 | 3,917,261 | 4,388 |
| 2030 | 5,463 | 5,161 | 25,208 | 167 | 4,214,857 | 4,721 |
| 2035 | 5,878 | 5,554 | 27,124 | 167 | 4,535,062 | 5,080 |

## 3.6 Total Water Demand

As described above, other water uses, as well as any water lost during conveyance, must be added to the customer demand in order to project water demand for LCWD. Table 3-15 summarizes the projections of water sales, unaccounted-for water, and total water demand through the year 2035.

The projected water sales in the remainder of the analysis, including Table 3-15, are calculated using the projections for water use. Two total water demand values are provided: baseline and conservation. The baseline demands projections below do not include water use reductions due to either additional implementation of DMMs or other water use reductions. Conservation-based demand projections are provided for reference purposes and assume full compliance with the SBX7-7 interim and compliance targets identified in this chapter. Baseline demands are used for supply reliability evaluation purposes throughout this UWMP in order to provide a conservative estimate of water supplies that may be required to meet system demands for the next twenty five years.

Table 3-15: Projected Water Sales, Unaccounted-for System Losses, and Total Water Demand, AF

| | | | | SBX7-7 Compliance Projections | |
|---|---|---|---|---|---|
| **Year** | **Projected Water Sales** | **Other Water Uses and Losses** | **Total Water Demand Baseline** | **Water Savings** | **Total Water Demand with Savings** |
| 2005(3) | 2,490 | 566 | 3,056 | 0 | 3,056 |
| 2010(3) | 2,781 | 909 | 3,690 | 0 | 3,690 |
| 2015 | 3,450 | 940 | 4,390 | 284 | 4,105 |
| 2020 | 3,712 | 1,009 | 4,720 | 642 | 4,078 |
| 2025 | 3,994 | 1,083 | 5,076 | 689 | 4,388 |
| 2030 | 4,297 | 1,162 | 5,460 | 738 | 4,721 |
| 2035 | 4,624 | 1,248 | 5,872 | 792 | 5,080 |

Notes:

1. This table is based on the DWR Guidebook Table 11.
2. Table is based on calendar year.
3. These years are included as historical data.

## 3.7 Consequences if Water Supplier Does Not Meet Water Use Targets

Each urban water supplier must comply with SBX7-7 by establishing 2015 and 2020 water use targets and reporting water use baselines, targets, compliance year water use, and supporting data in its UWMP as part of the following:

*Section 10608.56*

states that a water supplier not in compliance will not be eligible for water grants or loans that may be administered by DWR or other state agencies. *"On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies*

*with this part."*

Two exceptions to this are allowed.

*Section 10608.56*

(*c*) states that a water supplier shall be eligible for a water loan or grant if it *"has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions.*

*Section 10608.56*

(*e*) states that a water supplier can also be eligible for a water loan or grant if it *"has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community."*

Shown in subsection 2.6.5, Disadvantaged Community Status, LCWD is a disadvantaged community and therefore is eligible to receive a water loan or grant even if it does not meet the 2015 and 2020 water use targets set forth by this UWMP per Section 10608.56 (e) of the Water Code.

### 3.7.1 Low Income Users

*Section 10631.1*

*(a) Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.*

Senate Bill 1087 requires that water use projections of a UWMP include the projected water use for single-family and multifamily residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier.

Yuba County's General Plan lists income distributions for unincorporated areas in the county. According to the plan the percent of households identified as very low income and low income are 27.5 and 20.4 percent respectively. This calculates to an estimated 47.9 percent of the service population being below the low income level. Table 3-16 details the estimated amount of water use by low income and very low income users based on the Yuba County General Plan, Housing Element distributions of income for unincorporated areas.

Table 3-16: Low Income Projected Water Demands, AF

| Low Income Water Demands | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Single Family | 953 | 1,025 | 1,103 | 1,187 | 1,277 |
| Multifamily | 406 | 437 | 471 | 506 | 545 |
| Total | 1,359 | 1,462 | 1,573 | 1,693 | 1,821 |

Note:

1. Table format based on DWR Guidebook Table 8.

LCWD will not deny or condition approval of water services, or reduce the amount of services applied for by a proposed development that includes housing units affordable to lower income households unless one of the following occurs:

- LCWD specifically finds that it does not have sufficient water supply.
- LCWD is subject to a compliance order issued by the State Department of Public Health that prohibits new water connections.
- The applicant has failed to agree to reasonable terms and conditions relating to the provision of services.

# Section 4: Water Supply

A detailed evaluation of water supply is required by the Act. Sections 10631 (b) through (d) and (h) of the Act state the following:

*Section 10631*

*(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:*

*(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.*

*(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.*

*(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

*(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

*(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.*

*(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.*

This chapter addresses the water supply sources of LCWD. The following chapter provides details in response to those requirements of this portion of the Act.

## 4.1 Water Supply Sources

LCWD is exclusively dependent on groundwater from six wells which can operate at a maximum of 16,470 AFY as shown in Table 4-1. Yuba County Water Agency (YCWA) prepared a Groundwater Management Plan that includes the groundwater used by LCWD. The plan can be found in Appendix D. Areas of this report discussing groundwater reliability, storage, and historical trends refer to information contained in the YCWA Groundwater Management Plan.

Table 4-1: Current and Planned Water Supplies, AF

| Source | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|
| Wholesale | N/A | N/A | N/A | N/A | N/A | N/A |
| Groundwater | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 |
| Surface water | N/A | N/A | N/A | N/A | N/A | N/A |
| Transfers In | N/A | N/A | N/A | N/A | N/A | N/A |
| Exchanges In | N/A | N/A | N/A | N/A | N/A | N/A |
| Recycled water | 0 | 0 | 0 | 0 | 0 | 0 |
| Desalinated Water | N/A | N/A | N/A | N/A | N/A | N/A |
| **Total** | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 |

Note:
1. Table format based on DWR Guidebook Table 16.

### 4.1.1 South Yuba Groundwater Basin Description

The South Yuba sub basin lies in the southern portion of the Sacramento Basin Hydrologic Study Area. It is bounded on the north by the Yuba River, the west by the Feather River, on the south by the Bear River and on the east by the Sierra Nevada and encompasses nearly 107,000 acres. The Sacramento Valley Ground Water basin states that elevations range from about 150 feet in the northwest region to about 30 feet in the southwest corner near the confluence of the Feather and Bear Rivers.

Average annual precipitation is 20 inches in the southwest and 20-24 inches in the rest of the basin. Stream channel and floodplain deposits present along the Yuba River, Feather River, and Honcut Creek are highly permeable and provide for large amounts of groundwater recharge within the sub basin. The potential for artificial recharge of groundwater in the basin is limited since areas which have available storage space typically have overlying soils with very low infiltration rates that would restrict recharge potential.

The capacity of South Yuba Groundwater Basin (SYGB) as described in the YCWA Groundwater Management Plan is as follows:

> Total freshwater storage in Yuba County's groundwater basin is estimated to be 7.5 million acre feet. The base of freshwater is estimated to range from less than 300 ft. in the eastern portion of the basin to about 700 ft in the western portion, with depths to as much as 900 ft at the Feather River in the South Subbasin. However, since most wells are screened at less than 300 feet below ground surface, readily accessible freshwater is estimated at 4.0 million acre feet.

The SYGB that underlies LCWD is not adjudicated, and there are no set legal pumping rights. The DWR has not identified the SYGB to be projected in or currently in overdraft. The SYGB Management Plan identifies steps to prevent the groundwater basin from becoming overdrafted. The overdraft steps consist of groundwater level measurements taken from a large network of groundwater monitoring wells. The wells are monitored by DWR, YCWA, and local water suppliers. If overdraft is detected YCWA can take action to reduce production from the groundwater basin. It should be noted that the SYGB Groundwater Management Plan did not present what constitutes overdraft within the basin.

### 4.1.2 Groundwater Supply Wells

Groundwater pumping wells are located throughout LCWD; see Figure 4-1 for a map showing well locations. Table 4-2 shows the well and their respective maximum pumping rates.

Table 4-2: Well Production

| Well Number | Maximum Production (GPM) | Maximum Production (AFY) |
|---|---|---|
| 3 | 800 | 1,292 |
| 4 | 800 | 1,292 |
| 12 | 1,400 | 2,261 |
| 14 | 1,700 | 2,745 |
| 15 | 2,000 | 3,229 |
| 16 | 3,500 | 5,651 |
| Total | 10,200 | 16,470 |

### 4.1.3 Past Groundwater Usage

LCWD has increased groundwater pumping by an average rate of 10 percent each year until 2009. Table 4-3 shows quantities of groundwater pumped during the past five years. The water pumping quantities were determined by totaling LCWD's groundwater well pumping records.

Table 4-3: Amount of Groundwater Pumped, AF

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| South Yuba Groundwater Basin | 3,056 | 3,907 | 4,203 | 4,300 | 3,921 | 3,690 |
| Groundwater as a percent of total supply | 100% | 100% | 100% | 100% | 100% | 100% |

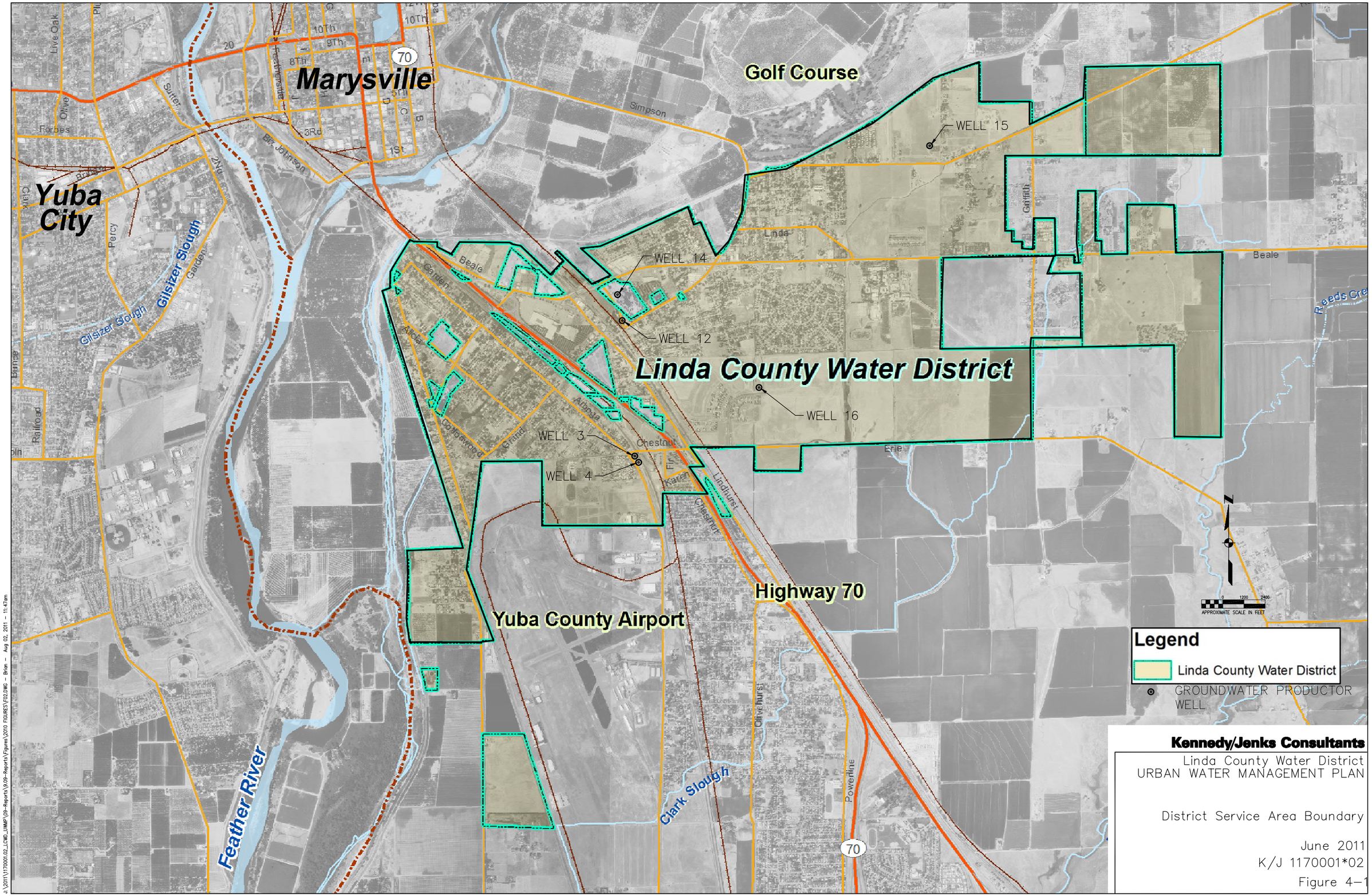
Note:
1. Table format based on DWR Guidebook Table 18.

The projected volume of groundwater needed to supply LCWD through 2035 is shown in Table 4-4.

Table 4-4: Projected Amount of Groundwater to be Pumped, AF

| | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|
| South Yuba Groundwater Basin | 3,690 | 4,390 | 4,720 | 5,076 | 5,460 | 5,872 |
| Groundwater as a percent of total supply | 100% | 100% | 100% | 100% | 100% | 100% |

Note:
1. Table format based on DWR Guidebook Table 19.


Marysville
Yuba City
Golf Course
Linda County Water District
Yuba County Airport
Highway 70
Feather River
Gilsizer Slough
Clark Slough
WELL 15
WELL 14
WELL 12
WELL 16
WELL 3
WELL 4
Simpson
Linda
Beale
Griffith
Erle
Chestnut
Lindhurst
Olivehurst
Powerline
Garden
Alicia
Cottonwood
Grand
Albona
Karen
Bizz Johnson
Sutter
Percy
Olive
Live Oak
Forbes
Clay
Railroad
Reeds Cre
70
APPROXIMATE SCALE IN FEET
Legend
Linda County Water District
GROUNDWATER PRODUCTOR WELL
Kennedy/Jenks Consultants
Linda County Water District
URBAN WATER MANAGEMENT PLAN
District Service Area Boundary
June 2011
K/J 1170001*02
Figure 4-1

## 4.2 Transfers and Exchanges

There are no planned transfer and/or exchange opportunities for LCWD at this time; therefore, Table 4-5 has been intentionally left blank.

### Table 4-5: Transfer and Exchange Opportunities

| Source Transfer Agency | Transfer or Exchange | Short Term | Proposed Quantities, AF | Long Term | Proposed Quantities |
|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A |

Note:
1. Table format based on DWR Guidebook Table 20.

## 4.3 Planned Water Supply Projects and Programs

As part of its normal maintenance and operations, LCWD constructs new wells, pipelines, and treatment systems as needed to maintain its supply and meet distribution system requirements.

There are no planned water supply projects and programs in LCWD at this time, therefore, Table 4-6 was left intentionally blank.

### Table 4-6: Future Water Supply Projects, AF

| | | | Multiple-Dry Years | | |
|---|---|---|---|---|---|
| **Project Name** | **Normal Year** | **Single-Dry Year** | **Year 1** | **Year 2** | **Year 3** |
| N/A | N/A | N/A | N/A | N/A | N/A |

Note:
1. This table is based on the DWR Guidebook Table 26.

## 4.4 Wholesale Agency Supply Data

LCWD does not currently receive water from a wholesale supplier; therefore Table 4-7 through Table 4-9 have been intentionally left blank.

### Table 4-7: Existing and Planned Water Sources Available to LCWD, AF

| Wholesaler Sources | | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| N/A | Existing | N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | Planned | N/A | N/A | N/A | N/A | N/A | N/A |

Note:
1. Table format based on DWR Guidebook Table 17.

Table 4-8: Reliability of Wholesale Supply for Year 2030, AF

| | | | Multiple-Dry Water Years | | |
|---|---|---|---|---|---|
| **Wholesaler** | **Normal Water Year Supply** | **Single Dry** | **Year 1** | **Year 2** | **Year 3** |
| NA | N/A | N/A | N/A | N/A | N/A |
| Percent Normal | N/A | N/A | N/A | N/A | N/A |

Note:

1. Table format based on DWR Guidebook Table 31.

Table 4-9: Factors Affecting Wholesale Supply

| Name of Supply | Legal | Environmental | Water Quality | Climatic |
|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A |

Note:

1. Table format based on DWR Guidebook Table 29.

## 4.5 Desalination

Section 10631 (i) of the Act requires an evaluation of desalination opportunities within LCWD. The Act states the following:

*Section 10631*

*(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.*

LCWD does not currently have opportunities for development of ocean water, brackish water, or saline groundwater as a long term supply; therefore Table 4-10 has intentionally been left blank.

Table 4-10: Summary of Opportunities for Water Desalination

| Source of Water | Yield (AFY) | Start Date | Type of Use | Other |
|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A |

## 4.6 Recycled Water Plan

This section covers Section 10633 which details the requirements of the Recycled Water Plan that are included in the Act. The Act states the following:

*Section 10633*

*The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning*

*agencies that operate within the supplier's service area and shall include all of the following:*

*(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*

*(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.*

*(c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.*

*(d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*

*(e) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre feet of, recycled water used per year.*

*(f) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.*

### 4.6.1 Wastewater Quantity

The District owns and operates an equivalent-secondary treatment level wastewater treatment plant (WWTP) situated on a 15-acre parcel of District property, located just outside of the flood protection levee of the Feather River shown in Figure 4-2. The WWTP is located at 909 Myrna Avenue, Olivehurst, CA.

**Figure 4-2: Aerial Photograph of Linda WWTP**

The original WWTP was constructed in 1960, with major plant upgrades completed in 1996 and 2002. The current treatment plant employs coarse and medium screening, grit removal, primary clarification, biotrickling filtration, secondary clarification, disinfection, dechlorination, and solids processing.

LCWD is currently upgrading and expanding the treatment processes at the District's WWTP. The WWTP will expand capacity from 1.8 to 5.0 million gallons per day (MGD) average dry weather flow, and will enhance treatment processes to tertiary treatment to comply with new regulations such as the California Toxics Rule (CTR) and requirements stemming from the State's adaptation of the State Implementation Plan (SIP). The construction began in December 2009 and is expected to be completed by February 2012.

### 4.6.2 Pond System – Current Secondary treatment Disposal

Treated wastewater is currently disposed of on land using a series of seven percolation/evaporation (p/e) ponds located west of the WWTP, inside of the flood protection levee. Individual ponds are separated by levee roads but connected through a network of underground pipes. The p/e ponds have a collective surface area of 28 acres and a capacity of 163 acre-feet, assuming two feet of freeboard.

#### 4.6.2.1 Past, Current, and Future Wastewater Flows

As a rural residential community with no industrial facilities and some commercial business, the wastewater is derived primarily from domestic sewage. The following subsections will detail the LCWD WWTP's historical and projected flows.

##### *4.6.2.1.1 Past and Current Wastewater Flows*

LCWD conducts continuous wastewater flow monitoring using a weir structure and ultrasonic level sensor at the effluent of the secondary clarifier. The District reports this information as part of its discharger self-monitoring reports. Table 4-11 provides a summary of the plant flow rates by month and year for the period January 2006 through December 2010. Over the past five years the annual average daily flow through the WWTP is consistently around 1 MGD.

Table 4-11: Treatment Plant Flows, MGD

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Daily Average Flow | 1.08 | 1.00 | 1.05 | 0.99 | 1.16 |

##### *4.6.2.1.2 Future Wastewater Flows*

LWCD is currently upgrading and expanding the existing WWTP to accommodate 5 MGD average dry weather flow. This expansion would allow LCWD to enter into agreements with surrounding communities for wastewater treatment. Currently there are no finalized agreements for LCWD to treat other agencies' wastewater, although a tentative agreement with the City of Marysville is currently in the negotiations phase, therefore, this plan considered only growth within LCWD in its future flow projections up to 2035. The potential of LCWD using and

producing recycled water will be evaluated after the completion of the wastewater treatment plant upgrades and final resolution of wastewater treatment service areas, therefore, no recycled water supply has been projected in Table 4-12.

Table 4-12: Future Wastewater Flows, MGD

| Year | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| Average Dry Weather Flow | 1.11 | 1.19 | 1.27 | 1.44 | 1.52 |

## 4.7 Recycled Water

LCWD participated in the Regional Recycled Water Facilities Master Plan with the City of Marysville and Yuba City to identify and evaluate regional opportunities to use recycled water to meet non-potable water demands in the Yuba-Sutter region. Table 4-13 summarizes the role of the agencies that participated in the development of recycled water plans that affect LCWD.

Table 4-13: Role of Participating Agencies in the Development of the Recycled Water Plan

| Participating Agencies | Role in Plan Development |
|---|---|
| Water agencies | Yuba City, City of Marysville |
| Wastewater agencies | Yuba City, City of Marysville |
| Groundwater agencies | Yuba City, City of Marysville |
| Planning agencies | Yuba County |

Once LCWD completes construction for the upgrades on its WWTP the effluent will meet most of the requirements of Title 22 of the CCR for recycled water. LCWD will then consider the possibility of additional filtration to use the effluent as recycled water. LCWD considers recycled water applications beneficial to reducing potable water demand and improving water supply reliability. Currently LCWD does not have access to recycled water, therefore all tables including past, current or projected recycled water use have been excluded from this UWMP (DWR Tables 22, 23, 24, and 25).

Table 4-14: Estimates of Existing and Projected Wastewater Collection and Treatment

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Projected population in service area | 20,237 | 21,774 | 23,429 | 25,208 | 27,124 |
| Wastewater collected & treated in service area, AFY | 1.11 | 1.19 | 1.27 | 1.44 | 1.52 |
| Quantity that meets recycled water standard | 0 | 0 | 0 | 0 | 0 |

Note:

1. This table is based on the DWR Guidebook Table 21.

# Section 5: Water Quality

Section 10634 of the Act requires an analysis of water quality issues and their impact to supply reliability. The Act states as follows:

> *Section 10634*
>
> *The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631 and the manner in which water quality affects water management strategies and supply reliability.*

## 5.1 Water Quality Issues

The drinking water quality of LCWD must comply with the Safe Drinking Water Act (SDWA), which is composed of primary and secondary drinking water standards regulated by the U.S. Environmental Protection Agency (U.S. EPA) and CDPH. Water quality sampling is performed at each well and within the distribution system to ensure compliance with the regulatory standards.

### 5.1.1 Surface Water Quality

LCWD does not hold water rights to use surface water and has no plans in the immediate future to pursue surface water as a source.

### 5.1.2 Groundwater Quality

The groundwater wells in the system meet all current California Title 22 Drinking water standards. The groundwater used as drinking water in LCWD is treated for iron, manganese, and entrained gasses including hydrogen sulfide, methane, and carbon dioxide. A copy of LCWD's annual consumer confidence report can be found in Appendix E. This report summarizes LCWD's drinking water quality. Currently the only well in danger of contamination is Well Number 12. Well Number 12 is adjacent to a leaky underground storage tank (LUST) site and is monitored for petroleum hydrocarbon contamination. It is assumed that Well Number 12 will continue to be operable in the future.

All wells in LCWD have wellhead treatment systems installed to treat for taste, odor, and color. The treatment systems consist of an aerator to remove entrained gasses, then a chlorination system, a sump to serve for contact time, and finally pressure filters.

## 5.2 Water Sources Not Available on a Consistent Basis

All of LCWD's wells can be used at any time to provide a reliable water supply.

## 5.3 Factors Resulting in Inconsistency of Supply

Other factors in addition to seasonal or climatic changes that can affect supply are:

- Mechanical failure or reduced capacity
- Change in water quality,
- Water treatment plant malfunction,
- Distribution system leak,
- Power outage, and
- Natural disaster.

Impacts to the water supplies due to water quality issues are not expected based on known and proposed drinking water regulations. Groundwater sources do not appear to be impacted by known or proposed drinking water regulations as they relate to water quality issues. The water supply sources are not expected to change in either quality or supply in the future. This is summarized in Table 5-1 below:

Table 5-1: Current and Projected Water Supply Impacts

| Water Source | Description of Condition | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| Groundwater, percent | N/A | 0 | 0 | 0 | 0 | 0 | 0 |

Note:

1. Table format based on DWR Guidebook Table 30.

# Section 6: Water Supply Reliability

Sections 10631 and 10635 of the Act require that an assessment of water service reliability for various climatic conditions be undertaken. The Act states:

*Section 10631*

*(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*

*(A) An average water year.*

*(B) A single dry water year.*

*(C) Multiple dry water years.*

*(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.*

*Section 10635*

*(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.*

This chapter provides a water supply and demand assessment for LCWD for a normal year, a single-dry year, and multiple-dry years. The following is a summary of the water supply sources and reliability of those sources for LCWD.

## 6.1 Supply Sources

LCWD relies solely on groundwater, an in-depth discussion concerning LCWD's supply can be found in Section 4.

## 6.2 Reliability of Supply

LCWD expects its supply to be 100 percent reliable during normal years for the next 25 years. Historically, LCWD has reliably pumped groundwater from SYGB. Based on the groundwater basin's reliability, LCWD's groundwater supply is expected to continue to be 100 percent reliable. This section presents water supply projections for groundwater sources during a normal year, a single-dry year, and multiple-dry years for LCWD through 2035.

### 6.2.1 LCWD's Water Supply Reliability

The normal-year supply represents the expected supply under average hydrologic conditions. The dry-year supply represents the expected supply under the single driest hydrologic year. The multiple-dry year supply represents the expected supply during a period of three consecutive dry years.

LCWD does not anticipate shortages in supply during single and multiple-dry year scenarios to affect supply. Even if demand was not reduced in dry years it can support normal usage during those years.

Table 6-1 lists single-dry year and multiple-dry year periods for groundwater and the supply reduction percentages are the following:

(i) A normal year is historical use;

(ii) A single dry-year is 100 percent of historical use, and

(iii) A multiple dry-year is 100, 100 and 100 percent of historical use for year 1, 2 and 3, respectively.

Table 6-1: Supply Reliability for Year 2035, AFY

| Source | Normal Water Year | Single-Dry Water Year | Multiple-Dry Water Years | | |
|---|---|---|---|---|---|
| | | | Year 1 | Year 2 | Year 3 |
| Groundwater | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 |
| Total | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 |
| Percent of Normal | 100 | 100 | 100 | 100 | 100 |

Note:
1. Table format based on DWR Guidebook Table 28.

The reliability of groundwater is dependent on local hydrologic conditions and availability of other water for augmented recharge. For the groundwater reliability analysis, precipitation data from 1949 through 2010 was reviewed.

Western Regional Climate Center (WRCC) collected the water year data at Marysville, CA. Precipitation data was evaluated from 1949 through 2010. 1976 was the single driest year with 7.41 inches of precipitation. The normal water year was based on DWR's description of the median water year over the period of record. The mean annual or normal year, precipitation between 1949 and 2010 at Marysville, CA was 21.59 inches. Based on historical conditions, the groundwater supply in the SYGB should be reliable in the future, including during drought conditions.

Table 6-2: Basis of Water Year Data Groundwater

| Water Year Type | Base Year(s) | Historical Sequence |
|---|---|---|
| Normal Water Year | 1978 | 1966 - 2011 |
| Single-Dry Water Year | 1976 -1977 | 1966 - 2011 |
| Multiple-Dry Water Years | 1987-1992 | 1966 - 2011 |

Note:
1. Table format based on DWR Guidebook Table 27.
2. Data used was from Western Regional Climate Center, Groundwater Level Data for Well 15N03E25J001M.

Hydrographs created from DWR well data in the basin indicate that groundwater levels have remained fairly stable over the period of record with the exception of static water level drops and subsequent recovery associated with 1976-1977 and 1987-1992 drought periods.

### 6.2.2 Factors Resulting in Inconsistency of Supply

Table 6-3 presents factors that could potentially result in inconsistency of supply for the LCWD. The SYGB is not currently adjudicated. There is little groundwater production within the basin and there are no anticipated future legal restrictions on the basin.

Table 6-3: Factors Resulting in Inconsistency of Supply

| Name of Supply | Legal | Environmental | Water Quality | Climatic |
|---|---|---|---|---|
| Groundwater, South Yuba Groundwater Basin | None | None | None | None |

Note:

1. Table format based on DWR Guidebook Table 29.

## 6.3 Normal Water Year Analysis

Table 6-4 summarizes the service reliability assessment for a normal water year based on water supply and water demand projections. As described previously in this chapter, local groundwater from the SYGB is expected to be 100 percent reliable to meet the projected demands during normal water year conditions through 2035.

Table 6-4: Comparison of Projected Normal Year Supply and Demand

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Water Supply Total (AF) | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 |
| Water Demand Total (AF) | 4,390 | 4,720 | 5,076 | 5,460 | 5,872 |
| Difference (supply minus demand) | 12,080 | 11,750 | 11,394 | 11,010 | 10,598 |
| Difference as Percent of Supply | 73% | 71% | 69% | 67% | 64% |
| Difference as Percent of Demand | 275% | 249% | 224% | 202% | 180% |

Note:

1. Table format based on DWR Guidebook Table 32.

## 6.4 Single Dry-Year Analysis

Table 6-5 demonstrates the reliability of water supplies to meet projected annual water demands for LCWD in a single-dry year. As described previously in this chapter, local groundwater from the SYGB is expected to be 100 percent reliable to meet the projected demands in a single dry-year through 2035 as shown in Table 6-5. Single-dry year water supply is based on historical use.

Table 6-5: Comparison of Projected Supply and Demand for Single-Dry Year

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Water Supply Total (AF) | 16,470 | 16,470 | 16,470 | 16,470 | 16,470 |
| Water Demand Total (AF) | 4,390 | 4,720 | 5,076 | 5,460 | 5,872 |
| Difference (supply minus demand) | 12,080 | 11,750 | 11,394 | 11,010 | 10,598 |
| Difference as Percent of Supply | 73% | 71% | 69% | 67% | 64% |
| Difference as Percent of Demand | 275% | 249% | 224% | 202% | 180% |

Notes:

1. Table format based on DWR Guidebook Table 33.

## 6.5 Multiple Dry-Year Analysis

LCWD also does not anticipate any water supply deficits during a multiple-dry year scenario. LCWD estimates that 100 percent of normal year demand will be met in the third dry year of a multiple dry-year event. Table 6-6 presents the projected multiple-dry year water supply and demand assessment. The groundwater supply is expected to continue to be 100 percent reliable under all hydrologic conditions.

Table 6-6: Projected Multiple-Dry Year Water Supply and Demand Assessment

| Year | Dry Year Supply - Available (AF) | Demand (AF) | Difference | Difference as Percent of Supply | Difference as Percent of Demand |
|---|---|---|---|---|---|
| 2011 | | | | | |
| 2012 | | | | | |
| 2013 | 16,470 | 4,264 | 12,206 | 74% | 286% |
| 2014 | 16,470 | 4,326 | 12,144 | 74% | 281% |
| 2015 | 16,470 | 4,390 | 12,080 | 73% | 275% |
| 2016 | | | | | |
| 2017 | | | | | |
| 2018 | 16,470 | 4,585 | 11,885 | 72% | 259% |
| 2019 | 16,470 | 4,652 | 11,818 | 72% | 254% |
| 2020 | 16,470 | 4,720 | 11,750 | 71% | 249% |
| 2021 | | | | | |
| 2022 | | | | | |
| 2023 | 16,470 | 4,931 | 11,539 | 70% | 234% |
| 2024 | 16,470 | 5,003 | 11,467 | 70% | 229% |
| 2025 | 16,470 | 5,076 | 11,394 | 69% | 224% |
| 2026 | | | | | |
| 2027 | | | | | |
| 2028 | 16,470 | 5,303 | 11,167 | 68% | 211% |
| 2029 | 16,470 | 5,381 | 11,089 | 67% | 206% |
| 2030 | 16,470 | 5,460 | 11,010 | 67% | 202% |
| 2031 | | | | | |
| 2032 | | | | | |
| 2033 | 16,470 | 5,703 | 10,767 | 65% | 189% |
| 2034 | 16,470 | 5,787 | 10,683 | 65% | 185% |
| 2035 | 16,470 | 5,872 | 10,598 | 64% | 180% |

Notes:

1. This assessment is based on the 3-year multiple-dry year period ending in 2015, 2020, 2025, 2030, and 2035.
2. Table format based on DWR Guidebook Table 34.
3. Multiple-dry year percentages are 100 for all years.

# Section 7: Water Demand Management Measures

This Section addresses the water conservation requirements of the Act for LCWD and includes a summary of current and planned Demand Management Measures (DMM) implementation and an overview of the proposed program for compliance with SBX7-7, which requires 20 percent statewide reduction in urban water use by 2020. The DMM portion of the Act states the following:

*Section 10631*

*(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:*

*(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:*

*(A) Water survey programs for single-family residential and multifamily residential customers.*

*(B) Residential plumbing retrofit.*

*(C) System water audits, leak detection, and repair.*

*(D) Metering with commodity rates for all new connections and retrofit of existing connections.*

*(E) Large landscape conservation programs and incentives.*

*(F) High-efficiency washing machine rebate programs.*

*(G) Public information programs.*

*(H) School education programs.*

*(I) Conservation programs for commercial, industrial, and institutional accounts.*

*(J) Wholesale agency programs.*

*(K) Conservation pricing.*

*(L) Water conservation coordinator.*

*(M) Water waste prohibition.*

*(N) Residential ultra-low-flush (ULFT) toilet replacement programs.*

*(2) A schedule of implementation for all water demand management measures proposed or described in the plan.*

*(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.*

*(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.*

*(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:*

*(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.*

*(2) Include a cost-benefit analysis, identifying total benefits and total costs.*

*(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.*

*(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.*

*(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by*

*complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.*

This section presents LCWD's past, current, and future water conservation effort in compliance with section 10631 of the Act. The 2010 UWMP Guidebook states that wholesale and retail urban water suppliers have different requirements for DMM implementation:

- Wholesale urban water suppliers need to address DMM 3, 4, 10, 11, and 12.
- Retail urban water suppliers need to address all DMMs, except DMM 10.

LCWD operates solely as an urban retail provider and does not sell water to any wholesale providers; therefore, it is exempt from DMM10. LCWD is committed to providing economically feasible programs that promote efficient water use and continues to implement DMM's to the extent practicable. Section 10631 (f) of the Act requires that all DMMs are to be discussed and a discussion of each DMM is presented in this section. The 14 DMMs are listed in Table 7-1 below:

Table 7-1: Summary of DMM's

| DMM No. | DMM Name |
|---|---|
| 1 | Water survey programs for single-family residential and multifamily residential customers |
| 2 | Residential plumbing and retrofit |
| 3 | System water audits, leak detection, and repair |
| 4 | Metering with commodity rates for all new connections and retrofit of existing connections |
| 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 accounts |
| 10 | Wholesale agency programs |
| 11 | Conservation pricing |
| 12 | Water Conservation Coordinator |
| 13 | Water waste prohibition |
| 14 | Residential ultra-low-flush toilet replacement program |

LCWD is not a signatory to the California Urban Water Conservation Council (CUWCC). However, LCWD used the CUWCC Method to evaluate cost effectiveness of non-implemented

DMMs. Inputs, calculations, and assumptions for the cost effectiveness of DMMs are shown in Appendix F.

## 7.1 DMM 1: Water Survey Programs for Single-Family Residential and Multifamily Residential Customers

A. Implementation

LCWD provides water surveys as requested for single and multifamily customers. Although water surveys are offered, the District is only able to perform a limited amount each year due to limited staff and budget. Therefore, this DMM was evaluated for cost effectiveness due to the limited service provided, and LCWD considers this DMM not fully implemented. This DMM is not currently implemented because it is not cost effective.

B. Implementation Schedule

LCWD provides a limited amount of surveys per year, but will consider implementing this DMM fully in the future, once it is determined to be cost effective and LCWD has budget to implement it.

C. Methods to Evaluate Effectiveness

Effectiveness for this DMM is quantifiable by the number of water surveys conducted. It should be noted that implementation of this DMM can also increase higher participation of DMMs 2, 6, 13, and 14.

Depending upon available resources, LCWD may conduct a survey among participating customers on resulting awareness of water conservation. A report of the findings from the survey would be included with the next UWMP. Table 7-2 details the cost effectiveness of implementing this DMM.

Table 7-2: DMM 1 Review Table

| Cost Effectiveness Summary | |
|---|---|
| Total Costs | $22,588 |
| Total Benefits | $3,347 |
| Discount Rate | 2.9% |
| Time Horizon | 25 years |
| Cost of Water | $940 |
| Water Savings (AFY) | 24 |
| Benefits/Costs | 0.15 |

The benefit to cost ratio is under 1 therefore it is not currently cost effective to implement.

D. Water Savings

Based on the limited amount of water surveys that are preformed in a year LCWD cannot quantify the water savings of its current effort.

## 7.2 DMM 2: Residential Plumbing Retrofit

A. Implementation

Construction within LCWD is subject to Yuba County ordinances and must meet the most recent California Uniform Building Code and California Plumbing Codes. LCWD does not offer low flow water use efficiency kits for free due to budgetary limitations. However, LCWD does make general recommendations to users on types of retrofits that can be purchased at local retailers which can be used to reduce water use. Since LCWD's service area is considered a disadvantaged community, it is unlikely that many users have purchased water saving retrofits. This DMM was evaluated for cost effectiveness due to the nature of the service LCWD currently provides and the intent of this DMM.

B. Implementation Schedule

LCWD provides recommendations on plumbing retrofit options that reduce water use as requested, but will consider implementing this DMM fully in the future.

C. Methods to Evaluate Effectiveness

Effectiveness for this DMM is quantifiable by the number of plumbing retrofits installed. Table 7-3 details the cost effectiveness of fully implementing this DMM.

Table 7-3: DMM 2 Review Table

| **Cost Effectiveness Summary** | |
|---|---|
| Total Costs | $7,645 |
| Total Benefits | $3,210 |
| Discount Rate | 2.9% |
| Time Horizon | 25 years |
| Cost of Water | $331 |
| Water Savings (AFY) | 23 |
| Benefits/Costs | 0.42 |

The benefit to cost ratio is less than 1, therefore, it is not currently cost effective to implement. It is important to note that the cost effectiveness of this DMM is also based on the amount and quality of low flow retrofits that could be provided. In this evaluation it was estimated a kit could be provided for approximately $12.00.

D. Water Savings

LCWD is unable to track the amount of water savings due to retrofits that may have been installed, or the number of retrofits actually installed because they do not survey residents to keep track of installations.

## 7.3 DMM 3: System Water Audits, Leak Detection, and Repair

A. Implementation

LCWD does not currently have a formal water audit, leak detection, and repair program. LCWD distribution pipelines are typically cast iron and when they fail it is catastrophic. This type of failure can be visually identified and repaired by the District. LCWD had an average water loss of 20 percent from 2005 to 2010. Section 3.6 details LCWD's water loss records.

B. Implementation Schedule

This DMM is currently being partially implemented as LCWD repairs leaks as they are known and the District will consider implementation formal program in the future, especially given the large amount of water loss.

C. Methods to Evaluate Effectiveness

Once the DMM is implemented, the District can evaluate the program's effectiveness by comparing past to current water loss. Currently the district evaluates it's water lost by comparing the water amount pumped to the amount sold.

D. Water Savings

The total amount of water conserved over the five-year period by implementing this DMM is directly related to the percentage of unaccounted-for water loss within the system.

## 7.4 DMM 4: Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

A. Implementation

LCWD's service area is fully metered and all connections are billed based on the volume of water used. All new construction is required to have water meters. In addition, customers are classified by meter type including single family residential, multifamily residential, commercial, institutional, industrial, and irrigation accounts.

B. Implementation Schedule

This DMM is fully implemented.

## 7.5 DMM 5: Large Landscape Conservation Programs and Incentives

A. Implementation

There are currently only 37 irrigation landscape users that account for 6 percent of the total water usage. LCWD does not currently have any conservation programs or incentives to reduce water use for landscape irrigation users. However, LCWD can offer irrigation landscape users advice

and suggest products to reduce their water use such as, weather based irrigation controllers (WBIC), and spay nozzles.

B. Implementation Schedule:

This DMM is not currently being fully implemented and the District will consider implementing it in the future.

C. Methods to evaluate effectiveness:

This DMM's effectiveness can be monitored once it is implemented by comparing past water use to current water use. Table 7-4 details thee potential alternatives for implementing this DMM.

Table 7-4: DMM 5 Review Table

| | WBICs Rebates | WBICs Direct Install | Precision Nozzles Distribution |
|---|---|---|---|
| Total Costs | $11,067 | $36,889 | $22,134 |
| Total Benefits | $6,938 | $6,938 | $6,671 |
| Discount Rate | 2.9% | 2.9% | 2.9% |
| Time Horizon | 25 years | 25 years | 25 years |
| Cost of Water | $196 | $653 | $443 |
| Water Savings (AFY) | 56 | 56 | 50 |
| Benefits/Costs | 0.63 | 0.19 | 0.30 |

The benefit to cost ratio is under 1 for all alternatives, therefore it is not currently cost effective to implement.

D. Water Savings

LCWD is unable to track the amount of water savings due to retrofits that may have been installed, or the number of retrofits actually installed because they do not survey to keep track of installations.

## 7.6 DMM 6: High-Efficiency Washing Machine Rebate Programs

A. Implementation

LCWD does not currently offer high efficiency washing machine rebate programs. The local gas and electric provider, PG&E, currently offers rebates for high efficiency clothes and dish washers through their own programs.

B. Implementation Schedule

There is currently no plan to implement this DMM as the service is already being provided by a local utility. LCWD will consider implementing this DMM if the local gas and electric provider ceases to offer these programs, and finds it is economically feasible.

C. Methods to Evaluate Effectiveness

Although LCWD does not have any immediate plans implement this DMM a cost benefit analysis was calculated and is shown in Table 7-5.

Table 7-5: DMM 6 Review Table

| Cost Effectiveness Summary | |
|---|---|
| Total Costs | $58,345 |
| Total Benefits | $14,538 |
| Discount Rate | 2.9% |
| Time Horizon | 25 years |
| Cost of Water ($/AF) | $482 |
| Water Savings (AFY) | 121 |
| Benefits/Costs | 0.25 |

The benefit to cost ratio is under 1 for all alternatives therefore it is not currently cost effective to implement.

D. Water Savings

LCWD is unable to track the amount of water savings due to replacement machines that may have been installed, or the number of efficient machines actually installed because they do not perform a survey to keep track of installations.

## 7.7 DMM 7: Public Information Programs

A. Implementation

The district currently does not provide Public Information Programs. The District will consider the cost-effectiveness of providing Public Information Programs as the District staff and budget continue to grow.

B. Implementation Schedule

This DMM is not currently being implemented and the District will consider implementing it in the future. LCWD may consider partnering with surrounding communities for a shared a public information program to make this DMM cost effective.

C. Methods to Evaluate Effectiveness

There is no available method to evaluate effectiveness this DMM.

D. Water Savings

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

## 7.8 DMM 8: School Education Programs

A. Implementation

The district does not currently provide school education programs. The District will consider the cost-effectiveness of providing school education programs as the District staff and budget continue to grow.

B. Implementation Schedule

This DMM is not currently being implemented and the District will consider implementing it in the future. LCWD may consider partnering in a school education program with the surrounding communities to make this DMM more cost effective.

C. Methods to Evaluate Effectiveness

There is no available method to evaluate effectiveness this DMM.

D. Water Savings

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

## 7.9 DMM 9: Conservation Programs for Commercial, Industrial, and Institutional Accounts

A. Implementation

The District has very few commercial, industrial, and institutional (CII) accounts resulting in very low potential water savings from implementing this DMM. This DMM would be better implemented as the number of accounts grows. The District will consider the cost-effectiveness of providing conservation programs for commercial, industrial, and institutional accounts as additional CII customers are served by LCWD.

B. Implementation Schedule

This DMM is not currently being implemented and the District will consider implementing it in the future. LCWD may consider partnering a CII conservation program with surrounding communities to make this DMM more cost effective.

C. Methods to Evaluate Effectiveness

There is no available method to evaluate effectiveness this DMM.

D. Water Savings

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

## 7.10 DMM 10: Wholesale Agency Programs

Since LCWD does not wholesale water, DMM 10 is not applicable.

## 7.11 DMM 11: Conservation Pricing

A. Implementation

LCWD bills its customers on a commodity basis for metered water use. LCWD does not currently have a conservation pricing rate structure that is tied to sewer service. The District will consider the cost-effectiveness of conservation pricing as the District staff and budget continue to grow.

B. Implementation Schedule

The DMM could be implemented through an administrative change in wastewater service billing. LCWD will consider implementing this DMM in the future.

C. Methods to Evaluate Effectiveness

There is no available method to evaluate effectiveness this DMM.

D. Water Savings Assumption

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

## 7.12 DMM 12: Water Conservation Coordinator

A. Implementation

LCWD is evaluating teaming with other water suppliers to hire a water conservation coordinator for the Marysville, Linda, and Olivehurst communities.

The District will consider the cost-effectiveness of a water conservation coordinator as the District staff and budget continue to grow.

B. Implementation Schedule

This DMM is not currently being implemented and the District will consider implementing it in the future.

C. Methods to Evaluate Effectiveness

The water conservation coordinator is responsible for program management, tracking, planning, documenting, and reporting on the implementation of DMMs. The effectiveness of this DMM is based on the overall effectiveness of the program as it relates to annual water savings. It is

currently not possible to quantify water savings and financial benefits from implementing this DMM; therefore a cost benefit analysis has not been performed.

D. Water Savings Assumptions

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

## 7.13 DMM 13: Water Waste Prohibition

A. Implementation

LCWD is currently implementing this DMM. If required, LCWD has the authority to discontinue service to the customer as identified in Section 5.9.3 of the LCWD water code book, which reads, "No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, seriously affecting the general service, the District may discontinue the service if such conditions are corrected within five (5) days after giving the customer written notice."

B. Implementation Schedule

The District is currently implementing this DMM.

C. Methods to Evaluate Effectiveness

This DMM's effectiveness could be evaluated through feedback from the community and through water usage comparisons from pre and post program implementation. There is currently no available data that could be used to evaluate effectiveness this DMM.

D. Water Savings Assumptions

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

## 7.14 DMM 14: Residential Ultra Low Flush Toilet Replacement Program

A. Implementation

LCWD currently does not provide rebates or incentives for installing ultra low flush toilets.

B. Implementation Schedule

This DMM is not currently being implemented and the District will consider implementing it in the future.

C. Methods to Evaluate Effectiveness

There is no available method to evaluate effectiveness this DMM.

D. Water Savings Assumptions

It is not possible to quantify water savings and financial benefits from implementing this DMM with currently available information.

# Section 8: Water Shortage Contingency Plan

Section 10632 of the Act details the requirements of the water-shortage contingency analysis. The Act states the following:

*Section 10632. The plan shall provide an urban water-shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:*

*(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions, which are applicable to each stage.*

*(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.*

*(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.*

*(d) Additional, mandatory prohibitions against specific water-use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.*

*(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water-use reduction consistent with up to a 50 percent reduction in water supply.*

*(f) Penalties or charges for excessive use, where applicable.*

*(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.*

*(h) A draft water shortage contingency resolution or ordinance.*

*(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

This chapter documents LCWD's Water Shortage Contingency Plan per requirements of Section 10632 of the Act. The purpose of the Water Shortage Contingency Plan is to provide a plan of action to be followed during the various stages of a water shortage. The plan includes the following elements: action stages, estimate of minimum supply available, actions to be implemented during a catastrophic interruption of water supplies, prohibitions, penalties and consumption reduction methods, revenue impacts of reduced sales, and water use monitoring procedures.

## 8.1 Rationing Stages

The Act requires documentation of actions to be undertaken during a water shortage. LCWD has developed actions to be undertaken in response to water supply shortages, including up to a 50 percent reduction in water supply.

LCWD has grouped the actions to be taken during a water shortage into four stages, 4 through 1, that are based on water supply conditions. Stage 5 is a level used for normal conditions. Table 8-1 describes the water supply shortage stages and conditions. The stages will be

implemented during water supply shortages according to shortage level, ranging from no shortage in Stage 5 to greater than 50 percent shortage in Stage 1.

Table 8-1: Water Supply Shortage Stages and Conditions

| Stage No. | Water Shortage Supply Conditions | Shortage Percent |
|---|---|---|
| 5 | Normal operations | 0 |
| 4 | Single well or treatment system is down | 10 |
| 3 | Single well or multiple wells inoperable, large system leak | 25 |
| 2 | Multiple wells inoperable, large system leak, or a natural disaster | 50 |
| 1 | Multiple wells inoperable, large system leak, or a severe natural disaster | >50 |

Note:
1. This table is based on the DWR Guidebook Table 35.

## 8.2 Next 3-Year Minimum Supply

The Act requires an estimate of the minimum water supply available during each of the next three water years based on the driest 3-year historic sequence for LCWD's water supply shown in Table 8-2. The driest 3-year historic sequence is provided in Chapter 6.

Table 8-2: 3-Year Estimated Minimum Water Supply, AF

| | Normal Year | 2012 | 2013 | 2014 |
|---|---|---|---|---|
| Groundwater | 16,470 | 16,470 | 16,470 | 16,470 |
| Total Supply | 16,470 | 16,470 | 16,470 | 16,470 |

## 8.3 Mandatory Prohibitions

The actions to be undertaken during each water shortage stage include, but are not limited to, the following:

Table 8-3: Mandatory Prohibitions

| Stage No. | Mandatory Prohibitions | Shortage Percent |
|---|---|---|
| 4 | Using potable water for street washing | 10 |
| 3 | Landscape Irrigation to odd/even days | 25 |
| 2 | No car washing | 50 |
| 1 | No landscape irrigation | >50 |

Excessive use penalties are intended to reduce demand by imposing higher rates for water users who use water excessively. LCWD does not currently have an excessive use policy to control water usage. LCWD may implement excessive use penalties as the District continues to

grow and demand increases. Table 8-4 shows the consumption reduction methods and how much reduction is expected at each stage.

Table 8-4: Water Supply Shortage Stages and Conditions

| Consumption Reduction Method | Stage when method takes effect | Projected Reduction (%) |
|---|---|---|
| Issue Water Shortage Alert | 4 | 10 |
| Implement Mandatory Prohibitions | 3 | 20 |
| Rate Increase | 2 | 25 |
| Water Policing | 1 | 30 |

## 8.4 Water Shortage Contingency Ordinance/Resolution

LCWD has a draft water shortage contingency ordinance that can be used in the event of a water shortage, and a copy of this ordinance is contained in Appendix I.

## 8.5 Revenue Impacts of Reduced Sales

Section 10632(g) of the Act requires an analysis of the impacts of each of the actions taken for conservation and water restriction on the revenues and expenditures of the water supplier. Table 8-5 provides a summary of actions with associated revenue reductions; while Table 8-6 provides a summary of actions and conditions that impact expenditures. Table 8-7 summarizes the proposed measures to overcome revenue impacts. Table 8-8 provides a summary of the proposed measures to overcome expenditure impacts.

Table 8-5: Summary of Actions and Conditions that Impact Revenue

| Type | Anticipated Revenue Reduction |
|---|---|
| Reduced sales | Reduction in revenue will be based on the decline in water sales and the corresponding quantity tariff rate |
| Recovery of revenues with board approved surcharge | Higher rates may result in further decline in water usage and further reduction in revenue |

Table 8-6: Summary of Actions and Conditions that Impact Expenditures

| Category | Anticipated Cost |
|---|---|
| Increased staff cost | Salaries and benefits for new hires required to administer and implement water shortage program |
| Increased O&M cost | Operating and maintenance costs associated with alternative sources of water supply |
| Increased cost of supply and treatment | Purchase and treatment costs of new water supply |

Table 8-7: Proposed Measures to Overcome Revenue Impacts

| Name of Measure | Summary of Effects |
|---|---|
| Obtain board approved surcharge | Allows for recovery of revenue shortfalls brought on by water shortage program |
| Penalties for excessive water use | Obtain board approval to use penalties to offset portion of revenue shortfall |

Table 8-8: Proposed Measures to Overcome Expenditure Impacts

| Name of Measure | Effects |
|---|---|
| Obtain board approved surcharge | Allows for recovery of increased expenditures brought on by water shortage program |
| Penalties for excessive water use | Obtain board approval to use penalties to offset portion of increased expenditures |

## 8.6 Catastrophic Supply Interruption Plan

The Act requires documentation of actions to be undertaken by the water supplier to prepare for and implement during a catastrophic interruption of water supplies. A catastrophic interruption constitutes a proclamation of a water shortage and could be any event (either natural or man-made) that causes a water shortage severe enough to classify as either a Stage 1 or Stage 2 water supply shortage condition.

The three most likely scenarios for catastrophic water supply interruption for LCWD is earthquake, flooding, and power outages.

LCWD is in seismic zone 3 and therefore is capable of experiencing a severe earthquake. Pipelines can rupture and treatment plants can fail as a result of an earthquake. LCWD will prepare for an earthquake by providing redundant systems, backup generators, and designing and building the water distribution infrastructure to withstand the maximum possible earthquake, following uniform building code guidelines.

Flooding is a possibility in Linda as shown in Figure 8-1. One danger from flooding is contamination of drinking water. The district employs disinfection procedures and stores disinfection supplies in case the drinking water system becomes contaminated. Another impact of severe flooding is that groundwater pumping and treatment equipment could become damaged. Evaluation, repair, and replacement of groundwater pumping and treatment equipment are a part of LCWD's protocol.

**Figure 8-1: Historic Flood near Marysville, CA**

Power outages are possible causes of water supply interruptions. All of the District's water distribution facilities are supplied with back-up power generators. In the event of a power outage, the back-up generators automatically start and supply electricity to the well and treatment system until power is restored. The back-up generators are designed to run for 24 hours at the wells maximum pumping capacity.

The steps that LCWD has taken to prepare for a catastrophic supply interruption are summarized below:

1. Design all water supply infrastructure and water treatment facilities to latest UBC code.
2. Have emergency disinfection products and procedures available, in the event of contamination from flooding.
3. Continue to periodically test and maintain emergency backup generators.

## 8.7 Water-Use Monitoring Procedures

The Act asks for an analysis of mechanisms for determining actual reduction in water use when the Water Shortage Contingency Plan is in effect. Table 8-9 lists the possible mechanisms used by LCWD to monitor water use and the quality of data expected.

Table 8-9: Water-Use Monitoring Mechanisms

| Mechanisms for Determining Actual Reductions | Type and Quality of Data Expected |
|---|---|
| Customer meter readings | Hourly/daily/monthly water consumption data for a specific user depending on frequency of readings |
| Production meter readings | Hourly/daily/monthly water production depending on frequency of readings; correlates to water use plus system losses |

In addition to the specific actions that LCWD can undertake to verify level of conservation, LCWD can monitor long-term water use through regular bi-monthly meter readings, which give LCWD the ability to flag exceptionally high usage for verification of water loss or abuse.

## References


*California Irrigation Management Information System.* "Marysville, CA." California Irrigation Management Information System. http://www.cimis.water.ca.gov/cimis/frontQuickReport.do?type=METO&list=1 (accessed April 28, 2011).

*Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan*. March 2011 ed. Sacramento, Calif.: California Resources Agency, Dept. of Water Resources, 2011.

*Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. Sacramento, Calif.: California Resources Agency, Dept. of Water Resources, 2011.

Sacramento Area Council of Governments. "SACOG - Demographics." SACOG. http://www.sacog.org/demographics/pophsg/coci.cfm/ (accessed April 26, 2011).

*U.S. Census*. "American FactFinder." American FactFinder. http://factfinder.census.gov/ (accessed April 26, 2011).

*Urban Drought Guidebook 2008 updated edition*. Updated ed. Sacramento, Calif.: California Resources Agency, Dept. of Water Resources, 2008.

Western Regional Climate Center. "Marysville, Ca (045385) Period of Record Monthly Climate Summary, 2/1/1897 - 10/31/2007." Western Regional Climate Center." http://www.wrcc.dri.edu/cgi-bin/cliRECtM.pl?ca5385 (accessed April 28, 2011).

Yuba County. "Yuba County General Plan Update." Yuba County. http://www.yubavision2030.org/Housing%20Element.aspx (accessed March 23, 2011).

Yuba County. "Yuba County Population." Yuba County. http://www.chooseyuba.com/population.php (accessed April 26, 2011).

*Yuba County Groundwater Management Plan*. Yuba: Yuba County Water Agency, 2010.

# Appendix A

Notice to Review Draft UWMP

# APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901
(530) 741-2345

## Affidavit of Publication

(2015.5 C.C.P)

## STATE OF CALIFORNIA,

## Counties of Yuba and Sutter

**Linda County Water District**

**Hearing Notice**

**I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No. CV PT99-0819 that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:**

**May 31 & June 6, 2011**

I declare under penalty of perjury
that the foregoing is true and correct.
Executed at Marysville, California

Date: **June 21, 2011**

Kelei Smith

(Signature)

This space is for the County Clerk's filing stamp.

RECEIVED
JUN 23 2011
L.C.W.D.

## PROOF OF PUBLICATION

**NOTICE OF PUBLIC HEARING**
**LINDA COUNTY WATER DISTRICT**
**URBAN WATER MANAGEMENT PLAN**

**NOTICE IS HEREBY GIVEN** that on June 13, 2011 at 7:00 pm at the Linda County Water District office, 1280 Scales Street, Marysville, California, 95901; the District Board of Directors will hold a public hearing on the following:

To discuss and adopt a 2010 Urban Water Management Plan. Linda County Water District is required under Assembly Bill 797 and 21661 to prepare an Urban Water Management Plan and submit it to the Department of Water Resources after adoption by the Board of Directors.

The purpose of the Urban Water management Plan is to achieve efficient use of water supplies and protect Linda ratepayers and their water sources. This report has been prepared in accordance with guidelines established by the California Department of Water Resources.

The public is encouraged to attend and provide comments. Copies of the Draft 2010 Urban Water Management Plan will be available for public review at the District's office, 1280 Scales Street, Marysville, California after May 31, 2011. Interested members of the public may contact Doug Lofton, Manger at (530) 743-2043 for more information

Dated: 5-11-11
Wendi Jellsey, District Secretary

May 31 & June 6, 2011 Ad #00119925

Kennedy/Jenks Consultants
Engineers & Scientists
10850 Gold Center Drive, Suite 350
Rancho Cordova, California 95670
916-858-2700
FAX: 916-858-2754

2 May 2011

Ms. Wendy Hartman
Yuba County – Planning Director
915 8th Street, Suite 123
Marysville, CA 95901

Subject: 2010 Urban Water Management Plan Preparation Notification
Linda County Water District
K/J 117002*01

Dear Wendy:

Linda County Water District is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for Linda County Water District. The UWMP will be available for public review prior to the public hearing and can be reviewed during normal business hours at the districts main office. Alternatively, we will be happy to provide you with an electronic copy of the 2010 Draft UWMP at your request.

Finally, the following is a tentative schedule of events until the UWMP is finalized,

| | |
|---|---|
| May 31, 2011 | Draft UWMP available for Review |
| May 31, 2011 | First notice of public meeting published in local paper |
| June 6, 2011 | Second notice of public meeting published in local paper |
| June 13, 2011 | Public meeting/District Adoption |
| July 1, 2011 | Final UWMP Submission to DWR |

A public hearing to solicit comments on the draft UWMP will be held at the Districts regularly scheduled board meeting at 7:00 p.m., on Monday, June 13, 2011 and takes place at 1280 Scales Avenue Marysville, CA 95901-6198.

Kennedy/Jenks Consultants is responsible for preparation of the UWMP update for LCWD and will be contacting you directly within the next few weeks to follow up on this request. In the meantime, should you have any questions or concerns please feel free to contact Brian Davis with Kennedy/Jenks Consultants at BrianDavis@kennedyjenks.com or (916) 858-2700.

Very truly yours,
KENNEDY/JENKS CONSULTANTS

Brian Davis, P.E.
Project Manager

cc: Douglas Lofton, Linda County Water District, General Manager

j:\2011\1170001.02_lcwd_uwmp\06-corrspnd\6.03-other\draft-letter.doc

# Appendix B

## Formal LCWD Board Adoption Resolution

# RESOLUTION NO. 645

## A RESOLUTION OF THE BOARD OF DIRECTORS OF THE LINDA COUNTY WATER DISTRICT ADOPTING 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act (Water Code section 10610 et seq.) requires the District to prepare, adopt and implement an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water;

WHEREAS, the District, through its District engineer Kennedy/Jenks Consultants, has prepared an Urban Water Management Plan; and

WHEREAS, the District has circulated for public review a draft Urban Water Management Plan, and properly noticed and conducted a public hearing before the Board of Directors regarding the proposed plan;

NOW THEREFORE, BE IT RESOLVED by the Board of Directors of Linda County Water District as follows:

1. The 2010 Urban Water Management Plan, in the form presented at this meeting, is hereby adopted and ordered filed with the District Secretary. The District Secretary is hereby authorized and directed to file the 2010 Urban Water Management Plan with the California Department of Water Resources, California State Library and County of Yuba within 30 days after this date.

2. Linda County Water District adopts Method 3 as its urban water use target method with an interim target of 181 gpcd, and a final target of 167 gpcd by the year 2020.

3. The General Manager is hereby authorized and directed to implement the 2010 Urban Water Management Plan in accordance with the schedule in the plan.

PASSED AND ADOPTED by the Board of Directors of the Linda County Water District this 11th day of July 2011 by the following vote.

AYES: DIRECTORS CARVER, HENLEY, MC ALEER, SAUNDERS AND WHITAKER
NOES: NONE
ABSENT: NONE
ABSTAIN: NONE

President

ATTEST

District Secretary

LINDA COUNTY WATER DISTRICT INCORPORATED DEC. 29, 1954 YUBA COUNTY CALIFORNIA

6347\R092205rps

The foregoing instrument is a correct copy of the original on file in this office.
ATTEST: WENDI JELLSEY
Secretary
Linda County Water District
By:
Date: 7-12-11

# Appendix C

Comments on Draft UWMP

(No Comments were Received)

# Appendix D

Yuba County Water Agency Groundwater Management Plan

December 2010

YUBA COUNTY WATER AGENCY

# Groundwater Management Plan

DECEMBER 2010

# TABLE OF CONTENTS


**CHAPTER 1.0 INTRODUCTION ..... 1-1**

1.1. Yuba County Water Agency ..... 1-1
1.2. Activities Affecting Resource Management ..... 1-4
*1.2.1. Sacramento Valley Water Management Program Short-Term Agreement (Phase 8) ..... 1-5*
*1.2.2. State Water Resources Control Board Water Right Decision 1644 and Lower Yuba River Accord ..... 1-5*
*1.2.3. Yuba County Water Agency Transfer Program ..... 1-6*
*1.2.4. Yuba County Integrated Regional Water Management Plan ..... 1-8*
1.3. Authority to Prepare and Implement Groundwater Management Plan ..... 1-9
1.4. Groundwater Management Plan Components ..... 1-9

**CHAPTER 2.0 YUBA COUNTY WATER RESOURCES ..... 2-1**

2.1. Yuba River Watershed, Hydrology, and Surface Water Supplies ..... 2-1
2.2. Surface Water Facilities ..... 2-1
2.3. Groundwater Supplies ..... 2-4
*2.3.1. Regional Geologic Setting ..... 2-5*
*2.3.2. Characterization of Subsurface Lithology ..... 2-5*
*2.3.3. Characterization of Groundwater Elevations, Groundwater Flow, and Basin Storage ..... 2-6*
*2.3.4. Assessment of Groundwater Budget Components ..... 2-11*
*2.3.5. Groundwater Response to Historical Water Transfers ..... 2-12*
*2.3.6. Yuba Basin Groundwater Quality ..... 2-16*
*2.3.7. Groundwater in Sierra Foothills ..... 2-20*
2.4. Water Use in Yuba County ..... 2-20
2.5. New and Future Tools, Facilities, and Operations ..... 2-26
*2.5.1. Yuba- Wheatland Canal Project ..... 2-26*
*2.5.2. Installation of New Monitoring Wells ..... 2-26*
*2.5.3. Lower Yuba River Accord Operations ..... 2-26*
*2.5.4. Groundwater Adaptive Management Tool ..... 2-27*
*2.5.5. FERC Relicensing ..... 2-27*

**CHAPTER 3.0 GROUNDWATER MANAGEMENT PLAN ELEMENTS ..... 3-1**

3.1. Groundwater Management Goal ..... 3-1
3.2. Basin Management Objectives ..... 3-1
3.3. Groundwater Management Plan Components ..... 3-3
3.4. Component Category 1: Stakeholder Involvement Plan ..... 3-4
*3.4.1. Involving the Public ..... 3-4*
*3.4.2. Involving Other Agencies Within and Adjacent to YCWA Area ..... 3-8*
*3.4.3. Forming Advisory Committee for Groundwater Management Plan Development ..... 3-10*
*3.4.4. Developing Relationships with State and Federal Agencies ..... 3-10*
*3.4.5. Pursuing Partnership Opportunities ..... 3-10*
3.5. Component Category 2: Monitoring Program ..... 3-11
*3.5.1. Groundwater Storage and Elevation Monitoring ..... 3-11*
*3.5.2. Groundwater Quality ..... 3-18*
*3.5.3. Inelastic Subsidence ..... 3-23*

*3.5.4. Groundwater and Surface Water Interaction ... 3-26*
*3.5.5. Data Management ... 3-28*
3.6. Component Category 3: Groundwater Resource Protection ... 3-29
*3.6.1. Well Construction, Abandonment, and Destruction Policies ... 3-29*
*3.6.2. Wellhead Protection Measures ... 3-31*
*3.6.3. Protection of Recharge Areas ... 3-32*
*3.6.4. Control of Migration and Remediation of Contaminated Groundwater ... 3-32*
*3.6.5. Fuel Storage Tanks ... 3-33*
*3.6.6. Control of Saline Water Intrusion ... 3-34*
3.7. Component Category 4: Groundwater Sustainability ... 3-34
*3.7.1. Sustainable Management of the Groundwater Basin ... 3-35*
*3.7.2. Increase Understanding of Groundwater Stressors in Yuba County Basin ... 3-35*
*3.7.3. Evaluation of Future Land Use Changes and Impact to Groundwater Resources ... 3-36*
**CHAPTER 4.0 PLAN IMPLEMENTATION ... 4-1**
4.1. Annual Monitoring and Measurement Report ... 4-1
4.2. Future Review of Groundwater Management Plan ... 4-1
4.3. Near-Term Implementation Actions ... 4-2
4.4. Integrated Regional Water Management ... 4-2
**CHAPTER 5.0 REFERENCES ... 5-1**

## LIST OF APPENDICES

Appendix A – The Yuba County Water Agency Act
Appendix B – Public Involvement Process

# LIST OF TABLES

Table 1-1. Yuba County Water Agency Historical Water Transfers 1987 Through 20101-7
Table 1-2. Location of Yuba County Water Agency's Groundwater Management Plan Components ..... 1-10
Table 2-1. Lithologic Classification System Used for Yuba Basin Lithologic Data ..... 2-6
Table 2-2. Yuba County Water Agency Historical Groundwater Substitution Pumping[a] 2-14
Table 2-3. Summary of Water Quality Indicators from DWR Survey for Yuba Subbasins 2-17
Table 2-4. Water Use in Yuba County, 2005 ..... 2-23
Table 3-1. Summary of Basin Management Objectives, Groundwater Management Plan Components, and Management Actions ..... 3-6
Table 3-2. Agencies Within or Adjacent to Yuba County Water Agency with Groundwater Interests ..... 3-8
Table 3-3. Summary of DWR/YCWA Water Elevation Monitoring Wells ..... 3-16
Table 4-1. Implementation Information for GMP Actions ..... 4-3

# LIST OF FIGURES

Figure 1-1. Location of Yuba County, Yuba County Water Agency, and Yuba Groundwater Basin (Groundwater Management Plan Area) ..... 1-3
Figure 2-1. Major Water Development Facilities in Yuba River Watershed ..... 2-3
Figure 2-2. Key Groundwater Hydrographs in North Yuba Groundwater Subbasin ..... 2-8
Figure 2-3. Key Groundwater Hydrographs in South Yuba Groundwater Subbasin ..... 2-9
Figure 2-4. Spring 2010 Groundwater Elevations in Yuba Basin ..... 2-10
Figure 2-5. Freshwater Yield vs. Depth Relative to Spring 2003 Measured Groundwater Levels in Yuba Basin ..... 2-11
Figure 2-6. Components of Hypothetical Groundwater Budget in Yuba Basin ..... 2-12
Figure 2-7. Groundwater Pumped for Substitution-Based Transfers in Yuba Basin ... 2-13
Figure 2-8. Groundwater Pumped for Substitution-Based Transfers in North Yuba Subbasin, 1991 – 2009 ..... 2-13
Figure 2-9. Groundwater Pumped for Substitution-Based Transfers in South Yuba Subbasin, 1991 – 2009 ..... 2-14
Figure 2-10. Typical Electrical Conductivity Values ..... 2-18
Figure 2-11. Electrical Conductivity in Yuba Basin During 2009 Groundwater Substitution Transfer ..... 2-19
Figure 2-12. Location of Water Purveyors Within Yuba County ..... 2-21
Figure 2-13. Water Demand in Yuba Basin, 2005 ..... 2-24
Figure 2-14. Example Comparison of North Yuba Subbasin Water Demand During Groundwater Substitution Transfer and Non-transfer Years ..... 2-25
Figure 3-1. Organization of Groundwater Management Plan Elements ..... 3-2
Figure 3-2. Groundwater Management Plan Update Public Outreach Process ..... 3-5
Figure 3-3. Yuba Groundwater Basin Wells Monitored for Elevation by YCWA and DWR ..... 3-14
Figure 3-4. Yuba Groundwater Basin Wells Monitored for Water Quality ..... 3-22
Figure 3-5. Subsidence Monitoring Network in North and South Yuba Subbasins ..... 3-25
Figure 3-6. Multilevel Piezometers and River Stage Monitoring Stations ..... 3-27

## ABBREVIATIONS AND ACRONYMS

µS/cm..... microSiemens per centimeter
AB ..... Assembly Bill
AF ..... acre-feet
AFB..... Air Force Base
Bay-Delta ..... San Francisco Bay/Sacramento-San Joaquin Delta
bgs ..... below ground surface
BMO..... basin management objectives
CALFED..... CALFED Bay-Delta Program
CASGEM ..... California Statewide Groundwater Elevation Monitoring
cfs ..... cubic feet per second
County ..... Yuba County
CVP ..... Central Valley Project
CWC ..... California Water Code
D-1641 ..... Water Right Decision 1641
DEH ..... Department of Environmental Health
DMS..... data management system
DPH ..... California Department of Public Health
DWR ..... California Department of Water Resources
DWSAP..... Drinking Water Source Assessment and Protection
EC..... electrical conductivity
EIR..... Environmental Impact Report
EIS ..... Environmental Impact Statement
FERC ..... Federal Energy Regulatory Commission
GAMA ..... Groundwater Ambient Monitoring and Assessment
GAMT ..... groundwater adaptive management tool
GMP..... Groundwater Management Plan
gpm..... gallons per minute
IRWMP ..... Integrated Regional Water Management Plan
LLNL ..... Lawrence Livermore National Laboratory
LUST..... leaky underground storage tank
M&I ..... municipal and industrial
MAF ..... million acre-feet
MCL ..... maximum contaminant level
mg/L..... milligrams per liter
MOU ..... memoranda of understanding
msl ..... mean sea level
MTBE..... methyl tert-butyl ether
NGS ..... National Geodetic Survey
NOI ..... notice of intent
O&M..... operation and maintenance
OPUD ..... Olivehurst Public Utility District
PAD ..... Preapplication Document
PBE..... physical barrier effectiveness

PCA ..... potential contaminating activity
PG&E..... Pacific Gas and Electric Company
Phase 8..... Sacramento Valley Water Management Program Short-Term Agreement of 2001
RD-1644 ..... State Water Resources Control Board Revised Water Right Decision 1644
Reclamation..... U.S. Department of the Interior, Bureau of Reclamation
RWQCB ..... Regional Water Quality Control Board
SB ..... Senate Bill
SCADA ..... supervisory control and data acquisition
SOP ..... standard operating procedure
SVWMP ..... Sacramento Valley Water Management Program
SWP..... State Water Project
SWRCB ..... State Water Resources Control Board
TAF ..... thousand acre-feet
TCE..... trichloroethylene
TDS..... total dissolved solids
USACE ..... U.S. Army Corps of Engineers
USCS..... Unified Soil Classification System
USGS..... U.S. Geological Survey
WAC ..... water advisory committee
YCWA..... Yuba County Water Agency
YRDP..... Yuba River Development Project
Yuba Accord ..... Lower Yuba River Accord

# CHAPTER 1.0
# INTRODUCTION

This Groundwater Management Plan (GMP) was created by the Yuba County Water Agency (YCWA) in accordance with Assembly Bill (AB) 3030 and the California Water Code (CWC) Sections 10750 et seq. The purpose of the YCWA GMP is to build on and formalize the historically successful management of the County's groundwater resource, and to develop a framework for implementing future activities. YCWA developed and adopted a GMP in 2005. This updated GMP reflects groundwater basin conditions through spring 2010, summarizes the status of management actions documented in the 2005 GMP, provides information on other YCWA water management activities within the basin, and presents an updated list of groundwater management actions.

## 1.1. YUBA COUNTY WATER AGENCY

YCWA is an independent, stand-alone government organization created in 1959 by the Yuba County Water Agency Act, hereafter referred to as the Act (see **Appendix A** for the complete Act). YCWA was created to develop and promote the beneficial use and regulation of the water resources of Yuba County (see **Figure 1-1** for the location of the Yuba County and YCWA boundaries). Two sections of the Act are of particular importance to groundwater management in Yuba County (County). The first section relates to water supply:

§SECTION 84-4. AVAILABILITY OF WATER SUPPLY; NECESSARY ACTS

> *Sec. 4. The agency shall have the power as limited in this act to do any and every lawful act necessary in order that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants within the agency, including, but not limited to irrigation, domestic, fire protection, municipal, commercial, industrial, recreational, and all other beneficial uses and purposes. (Stats.1959, c. 788, p. 2783, Section 4.)*

The second section relates to the storage of water:

> *Section 84-4.3 Storage of water; conservation and reclamation; actions involving use of waters or water rights*
>
> *Sec. 4.3. The agency shall have the power to store water in surface or underground reservoirs within or outside the agency for the common benefit of the agency; to conserve and reclaim water for present and future use within the agency; to appropriate and acquire water and water rights, and to import water into the agency and to conserve and utilize, within or outside the agency, water for any purpose useful to the agency; …(Stats.1959, c. 788, p. 2783, Section 4.3)*

YCWA has a long history of actively managing the County's water resources for beneficial use in cooperation with its member units,[1] stakeholders, and local, State of California (State), and federal agencies. An example is the YCWA's contribution to reversing a potentially serious overdraft situation in the South Yuba subbasin (see **Figure 1-1** for subbasin location). Between 1948 and 1981, groundwater elevations in the South Yuba subbasin declined an estimated 130 feet.[2] In 1984, YCWA began delivering surface water from its New Bullards Bar Reservoir to the subbasin to offset groundwater extraction, resulting in a groundwater elevation rise to near-historical levels.

[1] As defined in the Act, member units refer to any district that enters into a contract with YCWA for the delivery of water or repayment of infrastructure to deliver water. Currently, eight districts are member units of YCWA: Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Dry Creek Mutual Water Company, Hallwood Irrigation Company, Ramirez Water District, South Yuba Water District, and Wheatland Water District.

[2] Based on the hydrograph for State Well ID 14N05E06B01M, located in Brophy Water District.

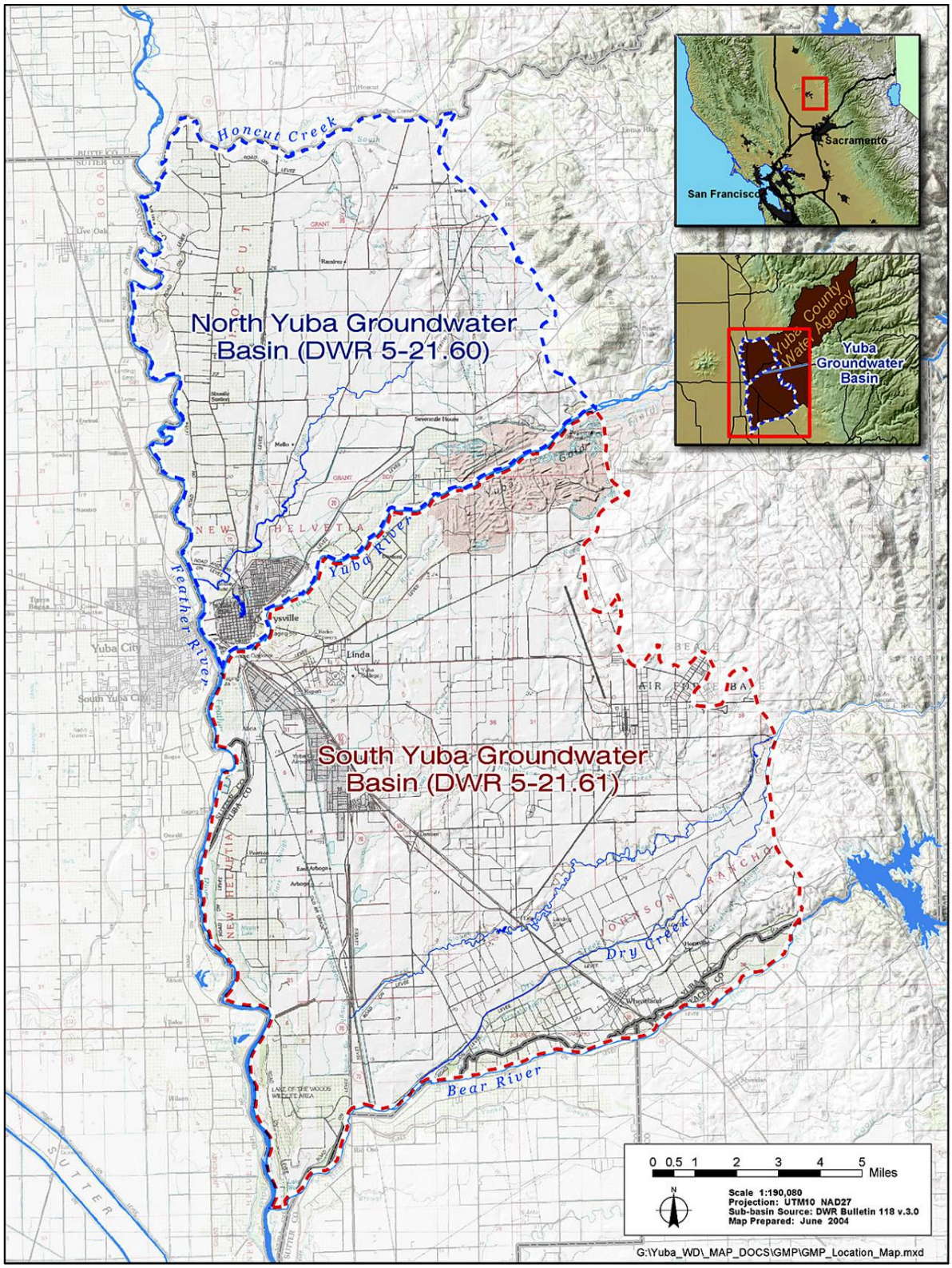



**Figure 1-1. Location of Yuba County, Yuba County Water Agency, and Yuba Groundwater Basin (Groundwater Management Plan Area)**

Such active surface water and groundwater conjunctive management is at the core of YCWA's commitment to resource management, a commitment that has led to the following activities:

- Monitoring North and South Yuba groundwater subbasin levels in cooperation with the California Department of Water Resources (DWR)
- Measuring groundwater quality
- Conducting groundwater studies
- Exercising the groundwater resource for the benefit of the County and State

In recognition of the importance of groundwater management, YCWA has undertaken efforts to formalize its historical groundwater management program by developing this GMP consistent with provisions of the CWC Section10750 et seq. The area covered by the GMP is shown in **Figure 1-1**.

## 1.2. ACTIVITIES AFFECTING RESOURCE MANAGEMENT

Over the past several decades, YCWA has met water resources management challenges brought on by the following:

- Floods of 1955, 1986, and 1997
- Droughts of 1976–1977 , 1987–1992, 2001–2002, and 2007–2009
- Bay-Delta Accord of 1994, State Water Resources Control Board (SWRCB) Water Right Decision 1641 (D-1641), and subsequent Sacramento Valley Water Management Program Short-Term Agreement of 2001 (Phase 8)
- Listing in 1999 of steelhead and spring run Chinook salmon under protection of the Endangered Species Act
- SWRCB Revised Water Right Decision 1644 (RD-1644) regarding minimum instream flows in the Lower Yuba River and the resulting Lower Yuba River Accord (Yuba Accord) (SWRCB, 2010)
- Yuba County's participation in meeting increasing statewide water demands through the YCWA transfer program
- Yuba County Integrated Regional Water Management Plan (IRWMP) of 2008 (Yuba County, 2008)

YCWA and its member units have invested substantial time and resources in planning efforts to address many of the aforementioned items. Some of these activities, listed above, are discussed in more detail below.

### 1.2.1. Sacramento Valley Water Management Program Short-Term Agreement (Phase 8)

The Sacramento Valley Water Management Program (SVWMP) is an integrated effort by Sacramento Valley water users to provide water as a mechanism to avoid an SWRCB hearing to determine which water users would be responsible to meet water quality standards set forth by the 1994 Bay-Delta Accord. Rather than face a hearing, the Sacramento Valley Water Management Agreement (Agreement) establishes a framework to meet supply, water quality, and environmental needs in the Sacramento Valley (Reclamation and DWR, 2005). YCWA is a signatory to the Agreement and is thereby committed to providing water for San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) water quality needs while it continues to manage the resource for local supply reliability and beneficial use within the County.[3] To implement the Agreement, Northern California water districts and companies have proposed more than 50 projects that will be included in both short- and long-term work plans. The U.S. Department of the Interior, Bureau of Reclamation (Reclamation), and DWR, in coordination with the signatory water districts and companies, are currently preparing the Short-Term Sacramento Valley Water Management Agreement Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) (Reclamation and DWR, 2005).

### 1.2.2. State Water Resources Control Board Water Right Decision 1644 and Lower Yuba River Accord

In 1988, a complaint was filed with SWRCB against YCWA by a coalition of fisheries groups. The coalition's main contention was that instream flow requirements did not provide an adequate level of protection for fishery resources in the lower Yuba River. On March 1, 2001, SWRCB issued Water Right Decision 1644 (D-1644) and on July 16, 2003, SWRCB issued RD-1644, which defines minimum instream flows in the lower Yuba River.[4]

Historically, collaborative management of the Yuba Basin has led to highly reliable water supplies both locally and statewide, including groundwater substitution transfers in 1991, 1994, 2001, 2002, 2008, 2009, and 2010. YCWA has worked within a broad coalition of 17 agricultural, environmental, and fisheries interests, including State and federal agencies, to develop an innovative set of agreements that together form a framework – the Lower Yuba River Accord (Yuba Accord) – that resolved nearly 15 years of controversy and litigation over instream flow requirements for the lower Yuba River. YCWA and 16 other interested parties signed memoranda of understanding (MOU) that specify the terms of the Yuba Accord, a comprehensive, consensus-based program to protect and enhance aquatic habitat in the Yuba River downstream from U.S. Army Corps of Engineers' (USACE) Englebright Dam. Following environmental review, YCWA and parties executed the following four agreements in 2007, which together comprise the Yuba Accord: (1) Lower Yuba River Fisheries Agreement, which specifies the Yuba Accord's lower Yuba River minimum streamflows and creates a detailed fisheries monitoring and evaluation program, (2) Water Purchase Agreement, under which DWR purchases water from YCWA for the CALFED Bay-

[3] For a list of the signatories of the agreement, see the Sacramento Valley Water Management Agreement, September 2001. (DWR, 2001)

[4] A copy of RD-1644 is available from the SWRCB board Web site : http://www.waterrights.ca.gov/hearings/decisions/RevisedWRD1644.pdf

Delta Program (CALFED) Environmental Water Account and for Central Valley Project (CVP) and State Water Project (SWP) contractors, (3) Conjunctive Use Agreements with seven of YCWA's member units that specifies the terms of the Yuba Accord's groundwater conjunctive use program, and (4) amendments to the 1966 Power Purchase Contract between YCWA and the Pacific Gas and Electric Company (PG&E). Together, this package of agreements provides more water for instream flows and greater reliability for both instream and consumptive uses than would have been possible without the agreements.

YCWA has been operating the Project in conformance with the Yuba Accord since 2006. The 2006, 2007, and early 2008 operations were conducted under 1-year pilot programs approved by SWRCB. YCWA, DWR, and Reclamation prepared a draft EIS/EIR for the Yuba Accord in June 2007, and released the final EIS/EIR in October 2007. On May 20, 2008, SWRCB adopted its Corrected Order WR 2008-0014, which approved long-term amendments to YCWA's water-right permits that were necessary to allow YCWA to continue to implement the Yuba Accord. In 2009, YCWA and others who helped author the Accord won the California Governor's Environmental and Economic Leadership Award, the State's highest environmental honor.

### 1.2.3. Yuba County Water Agency Transfer Program

In addition to supplying water to its local member units, YCWA has transferred water to other parts of the State when there was both a need for additional supply in other areas and when available water from the Yuba River was greater than local need. As detailed in **Table 1-1**, YCWA has significant experience in water transfers, both surface water and groundwater substitution transfers. These transfers were often developed through cooperation between YCWA and its member units in the form of groundwater substitution transfers. For groundwater substitution transfers, YCWA participates in close monitoring of the groundwater basin. Groundwater substitution transfers are discussed in more detail in Section 2.

## Table 1-1. Yuba County Water Agency Historical Water Transfers 1987 Through 2010

| Year | Sacramento Valley Index[i] Water-Year Type | Buyer | Stored-Water Transfer (acre-feet) | Groundwater Substitution Transfer (acre-feet) |
|---|---|---|---|---|
| 1987 | Dry | California Department of Water Resources | 83,100 | |
| 1988 | Critical | California Department of Water Resources | 135,000 | |
| 1989 | Dry | California Department of Water Resources | 90,000 | |
| | | California Department of Water Resources for California Department of Fish and Game | 110,000 | |
| | | City of Napa | 7,000 | |
| | | East Bay Municipal Utility District | 60,000a | |
| 1990 | Critical | City of Napa | 6,700 | |
| | | California Department of Water Resources | 109,000 | |
| | | Tudor Mutual Water Company/Feather Water District | 2,951 | |
| 1991 | Critical | State Water Bank | 99,200[b] | 84,840 |
| | | State Water Bank – California Department of Fish and Game | 28,000 | |
| | | City of Napa | 7,500 | |
| 1992 | Critical | State Water Bank | 30,000[c] | |
| 1994 | Critical | California Department of Water Resources | | 26,033 |
| 1997 | Wet | Reclamation for Refuge Water | 25,000[d] | |
| | | Sacramento Area Flood Control Agency for American River Fishery | 48,857 | |
| 2001 | Dry | Environmental Water Account | 50,000[e] | |
| | | California Department of Water Resources | 52,912 | 61,140 |
| 2002 | Dry | Environmental Water Account | 79,742 | 55,258 |
| | | California Department of Water Resources | 22,050 | |
| | | Contra Costa Water District | 5,000 | |
| 2003 | Above–Normal | Environmental Water Account | 65,000[f] | |
| | | Contra Costa Water District | 5,000 | |
| 2004 | Below–Normal | Environmental Water Account | 100,000[f] | |
| | | California Department of Water Resources | 487 | |
| 2005 | Above–Normal | Environmental Water Account | 6,086[f] | |
| 2006 | Wet | Environmental Water Account | 60,000[a] | |
| 2007 | Dry | Yuba Accord Water Purchase Participants | 65,000[f,g,h] | |
| 2008 | Critical | Yuba Accord Water Purchase Participants | 117,212[f,g] | 48,875 |
| 2009 | Dry | Yuba Accord Water Purchase Participants | 91,100[f,g] | |
| | | DWR Drought Water Bank | | 88,900[j] |
| 2010 | Below–Normal | Yuba Accord Water Purchase Participants | 74,179 [f,g] | |
| | | Yuba Accord Water Purchase Participants | | 66,213 |
| Total | | | 1,636,076 | 431,259 |

Notes:
[a] Sold but not delivered.
[b] In 1991, BVID transferred an additional 5.5 TAF to the State Water Bank through conservation.
[c] In 1992, BVID transferred an additional 5.5 TAF to the State Water Bank through conservation.
[d] In 1997, the transfer included 5 TAF from BVID.
[e] In 2001, BVID transferred an additional 4.5 TAF to DWR (stored water transfer) and 3.5 TAF to the EWA (groundwater substitution pumping).
[f] In 2002, 2003, 2003, 2007, 2008, 2009 and 2010, BVID transferred an additional 3.1 TAF to SCVWD through conservation.
[g] Transfers to the Yuba Accord Water Purchase Participants includes 60 TAF of stored water for the Environmental Water Account
[h] The 2007 transfer was under Yuba Accord Pilot Program. It also included 60 TAF of transfer to the EWA purchased in 2006.
[I] Sacramento Valley Index as defined in SWRCB RD-1641
[j] In 2009, CID transferred an additional 8.3 TAF to the DWR Drought Water Bank.
Key:
AF = Acre-feet EWA = Environmental Water Account

The historical success of YCWA's transfer program, the requisite monitoring program, and cooperation with member units, local stakeholders and local, State, and federal agencies exemplify YCWA's commitment to resource management, and form the foundation for the GMP.

### 1.2.4. Yuba County Integrated Regional Water Management Plan

The IRWMP, released in 2008 (Yuba County, 2008), was developed to facilitate regional-scale coordination of water management opportunities, including improving water supply reliability, flood protection, and other water resources needs in an environmentally appropriate way to maximize benefits for citizens of Yuba County. YCWA served as the regional lead agency in the coordinated development of the IRWMP with the Management Group, which comprised 11 local districts, cities, and agencies. YCWA also served as the lead agency for the Management Group in preparing the Proposition 50 IRWMP Planning Grant Application, which funded preparation of the Yuba County IRWMP.

As part of the IRWMP process, the Management Group identified the following strategies as most important for addressing water resources issues in Yuba County:

- Flood management
- Water supply reliability
- Water quality protection and improvement
- Ecosystem restoration
- Water recycling and reuse
- Recreation and public access

The complex and integrated nature of water resources in the County is reflected in the relationships between water management issues, and requires integration of these strategies to meet the differing needs in a cost-effective manner. During development of the IRWMP, more than 65 projects were identified that support implementation of these strategies. These projects were evaluated, screened, and prioritized by the Management Group to guide the order of implementation.

YCWA is updating the 2008 IRWMP and the updated version will be used by the Management Group and individual local agencies to provide guidance on water management planning, and to support implementation of projects and programs that improve water management in the County. Public participation will continue to be encouraged and promoted, and will be an essential part of implementing projects and refining the IRWMP. This updated GMP will serve as the groundwater component of the updated Yuba Region IRWMP.

## 1.3. AUTHORITY TO PREPARE AND IMPLEMENT GROUNDWATER MANAGEMENT PLAN

The authority to manage the County's groundwater resource is provided through the Act and CWC Division 6, Part 2.75 (Section 10750 et seq.). YCWA prepared the 2005 GMP and this updated GMP update consistent with the provisions of CWC Section 10750 et seq., as amended January 1, 2003.

The State groundwater management law (CWC Division 6, Part 2.75, commencing with Section 10750) prohibits YCWA from managing groundwater within the service area of another local water district, public utility, or mutual water company, without the agreement of that other entity (Section 10750.9(b)). This GMP and YCWA's implementation of the GMP shall comply with these and other applicable limitations of State law.

State law encourages local water agencies to coordinate on GMPs (see CWC Sections 10755.2–10755.4.) The draft GMP should indicate whether or not any of the local districts has adopted its own GMP. If one or more local districts have adopted a GMP, the YCWA GMP should address coordination among the GMPs and involved districts; both South Yuba Water District and Cordua Irrigation District have adopted GMPs.

## 1.4. GROUNDWATER MANAGEMENT PLAN COMPONENTS

The YCWA GMP includes the following required and recommended components:

- CWC Section 10750 et seq. (seven mandatory components). Recent amendments to the CWC Section 10750 et seq. require GMPs to include several components to be eligible for the award of funds administered by DWR for construction of groundwater projects or groundwater quality projects.

- DWR Bulletin 118 (2003) components (seven recommended components).

- CWC Section 10750 et seq. (12 voluntary components). CWC Section 10750 et seq. includes 12 specific technical issues that could be addressed in GMPs to manage basins optimally and protect against adverse conditions.

**Table 1-2** lists the section(s) in which each component is addressed.

## Table 1-2. Location of Yuba County Water Agency's Groundwater Management Plan Components

| Description | Section(s) |
|---|---|
| A. CWC Section 10750 *et seq.*, Mandatory Components | |
| 1. Documentation of public involvement statement. | 3.4.1, 3.4.3 |
| 2. Basin management objectives (BMO). | 3.2 |
| 3. Monitoring and management of groundwater elevations, groundwater quality, inelastic land surface subsidence, and changes in surface water flows and quality that directly affect groundwater levels or quality or are caused by pumping. | 3.5 |
| 4. Plan to involve other agencies located within groundwater basin. | 3.4.2 |
| 5. Adoption of monitoring protocols by basin stakeholders. | 3.5 |
| 6. Map of groundwater basin showing area of agency subject to GMP, other local agency boundaries, and groundwater basin boundary as defined in DWR Bulletin 118. | Figure 1-1 |
| 7. For agencies not overlying groundwater basins, preparation GMP using appropriate geologic and hydrogeologic principles. | NA |
| B. DWR Recommended Components | |
| 1. Manage with guidance of advisory committee. | 3.4.3 |
| 2. Describe area to be managed under GMP. | 2.1 – 2.4 |
| 3. Create link between BMOs and goals and actions of GMP. | 3.2, 3.3 |
| 4. Describe GMP monitoring program. | 3.5 |
| 5. Describe integrated water management planning efforts. | 3.4.5 |
| 6. Report on implementation of GMP. | 4.1 |
| 7. Evaluate GMP periodically. | 4.2 |
| C. CWC Section 10750 *et seq.*, Voluntary Components | |
| 1. Control of saline water intrusion. | 3.6.6 |
| 2. Identification and management of wellhead protection areas and recharge areas. | 3.6.2, 3.6.3 |
| 3. Regulation of the migration of contaminated groundwater. | 3.6.4 |
| 4. Administration of well abandonment and well destruction program. | 3.6.1 |
| 5. Mitigation of conditions of overdraft. | 3.5.1, 3.7 |
| 6. Replenishment of groundwater extracted by water producers. | 3.7 |
| 7. Monitoring of groundwater levels and storage. | 3.5.1 |
| 8. Facilitating conjunctive use operations. | 3.7 |
| 9. Identification of well construction policies. | 3.6.1 |
| 10. Construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects. | NA |
| 11. Development of relationships with State and federal regulatory agencies. | 3.4.4 |
| 12. Review of land use plans and coordination with land use planning agencies to assess activities that create reasonable risk of groundwater contamination. | 3.6.5 |

Key:
BMO = Basin Management Objective
CWC = California Water Code
DWR = California Department of Water Resources
GMP = Groundwater Management Plan
NA = not applicable
State = State of California

# CHAPTER 2.0
# YUBA COUNTY WATER RESOURCES

The following section describes the hydrology of the Yuba River watershed and the Yuba groundwater basin, as well as water use within the area overlying the groundwater basin.

## 2.1. YUBA RIVER WATERSHED, HYDROLOGY, AND SURFACE WATER SUPPLIES

The Yuba River watershed drains approximately 1,339 square miles of the western Sierra Nevada slope, including portions of Sierra, Placer, Yuba, and Nevada counties. The Yuba River is a tributary of the Feather River, which, in turn, is a tributary of the Sacramento River (**Figure 2-1**). The average annual unimpaired flow of the Yuba River at Smartville is 2.36 million acre-feet (MAF); however, a significant portion of this water is diverted out of the watershed and is not available to the lower Yuba River. The annual unimpaired flow has ranged from a high of 4.925 MAF in 1986 to a low of 370 thousand acre-feet (TAF) in 1977.

Yearly precipitation as recorded at Marysville, CA has averaged approximately 21 inches per year since 1950. Most of the rainfall occurs in the late fall to early spring months (October to April).

## 2.2. SURFACE WATER FACILITIES

Since the mid 1800s, the Yuba River watershed has been significantly developed for gold mining, debris control, water supply, power generation, flood control, fish enhancement, and recreation. This development includes upstream hydroelectric diversions by PG&E; hydroelectric and water supply diversions by Nevada Irrigation District and South Feather Water and Power Agency; construction of Daguerre Point Dam and Englebright Dam by the California Debris Commission, now operated and maintained by USACE for debris control; and construction of New Bullards Bar Dam by YCWA for water supply, flood control, hydroelectric generation, recreation, and fish and wildlife enhancement (**Figure 2-1**).

Daguerre Point Dam, the first dam constructed on the lower Yuba River that still exists, is located about 12.5 miles downstream from the current Englebright Dam. Construction was completed in 1906, with diversion of the river over the dam being completed in 1910. Today, Daguerre Point Dam is the location of the majority of water diversions from the lower Yuba River. Daguerre Point Dam, because of its impoundment of water, provides enhanced recharge from the Yuba River to both the North and South Yuba groundwater subbasins.

Englebright Dam, the second dam constructed on the lower river, was built in 1941 by the California Debris Commission, now operated and maintained by USACE, to collect placer-mining debris moving down the Yuba River into the Sacramento Valley, and provide for beneficial use of water, recreation, flood control, and downstream navigation. The North, Middle and South branches of the Yuba River flow into Englebright Reservoir. Consequently, construction of Englebright Dam completely blocked anadromous fish migration into the North, Middle, and South branches of the Yuba River. The dam constitutes the upstream extent of anadromous fish migration today. The approximately 24-mile-long reach of the Yuba River between Englebright Dam and its confluence with the Feather River has been defined as the lower Yuba River (**Figure 2-1**).

YCWA began operation of its Yuba River Development Project (YRDP) in 1970. As part of the YRDP, New Bullards Bar Dam was built on the North Yuba River. YCWA owns and operates the Colgate and Narrows II powerhouses below New Bullards Bar and Englebright dams, respectively. Release capacity of the Narrows II Powerhouse is approximately 3,400 cubic feet per second (cfs), which defines the YCWA's greatest controlled release capability from Englebright Reservoir into the lower Yuba River.

New Bullards Bar Reservoir, located upstream from Englebright Dam, is the primary storage reservoir within the Yuba River watershed, with a storage capacity of about 966,000 acre-feet. Fifteen other reservoirs have been constructed in the upper portion of the watershed on the Middle and South Yuba rivers, with a combined storage capacity of approximately 400,000 acre-feet. With the exception of New Bullards Bar Reservoir, there is only minimal storage for regulation of snowmelt within the watershed. Smaller storage facilities at the headwaters of the South Yuba River and Middle Yuba River usually fill with early runoff. Hence, in wetter years, much of the spring and early summer flow to the lower Yuba River is a result of uncontrolled snowmelt within the watershed. In summer and early fall, before the precipitation season, most of the flow in the lower Yuba River is provided by releases from New Bullards Bar Reservoir.

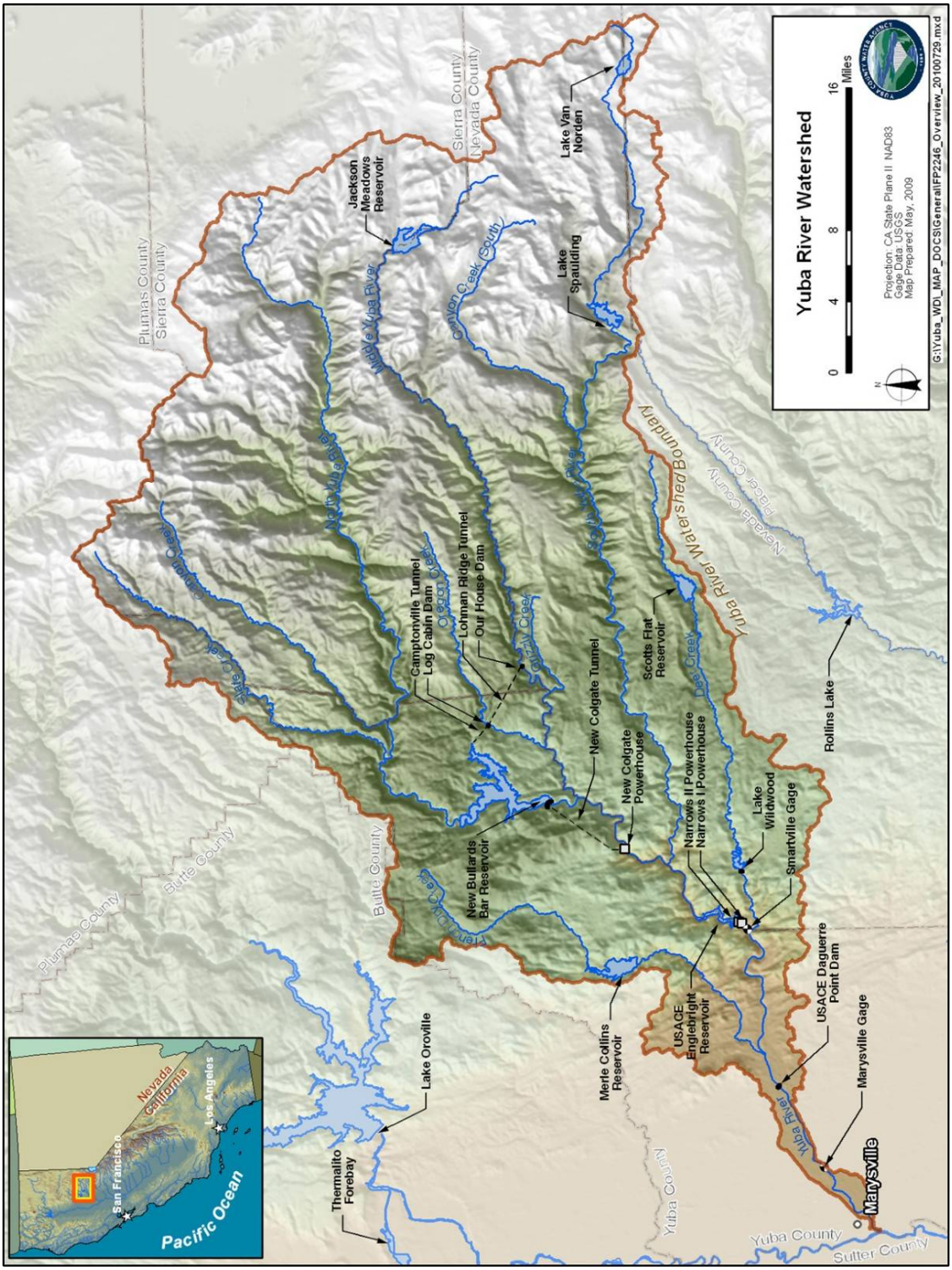



**Figure 2-1. Major Water Development Facilities in Yuba River Watershed**

The coupled operation of New Bullards Bar Reservoir and Englebright Reservoir includes releases through the New Colgate, Narrows I (owned by PG&E), and Narrows II hydroelectric generating facilities, providing the principal regulation of the lower Yuba River. Under existing water rights and agreements, PG&E may operate up to 45 of the 75 TAF of Englebright Reservoir storage, but only about 10 TAF of this capacity is typically exercised. This fluctuation of the Englebright Reservoir storage is principally for daily or weekly regulation of winter freshets and because Englebright Reservoir is an afterbay for Colgate Powerhouse operations. Average impaired inflow into Englebright Reservoir is about 1.6 MAF per year. On average, 1.1 MAF per year pass through New Bullards Bar Reservoir; the remaining 500 TAF are local inflow and flow from the South Yuba and Middle Yuba rivers directly into Englebright Reservoir. Below Englebright Reservoir, local inflow and runoff from Deer Creek contributes, on average, an additional 170 TAF per year below the Smartville gage, just below Englebright Dam.

The New Bullards Bar Dam and Reservoir, Our House and Log Cabin diversion dams, Colgate Powerhouse, Narrows II Powerhouse, and lower Yuba River diversions and other conveyance facilities make up the principal components of the YRDP, which the YCWA constructed in the late 1960s.

## 2.3. GROUNDWATER SUPPLIES

This section provides a regional description of the geologic and hydrogeologic conditions of the groundwater basin underlying Yuba County. As defined by DWR Bulletin 118 (2003), the basin is divided by the Yuba River into the North Yuba and South Yuba subbasins (**Figure 1-1**). DWR defines the subbasins as follows:

- North Yuba subbasin (groundwater basin number 5-21.60) is bounded on the north by Honcut Creek, the Feather River on the west, on the south by the Yuba River, and on the east by the Sierra Nevada.

- South Yuba subbasin (groundwater basin number 5-21.61) is bounded on the north by the Yuba River, the Feather River on the west, on the south by the Bear River, and on the east by the Sierra Nevada.

These two subbasins are considered subbasins to the larger Sacramento Valley groundwater basin, and are hydraulically isolated from the rest of the Sacramento Valley basin by the surface streams that surround it. The Yuba County groundwater subbasins encompass an area of approximately 270 square miles.

Information provided in this section summarizes an extensive investigation and report titled *Hydrogeologic Understanding of the Yuba Basin* (Hydrogeologic Understanding report) (YCWA, 2008), as well as other studies conducted and data collected since release of the 2005 GMP (YCWA, 2005)). In particular, the following topics are discussed:

- Regional geologic setting

- Characterization of subsurface lithology

- Characterization of groundwater elevations, groundwater flow, and basin storage

- Assessment of groundwater budget components
- Groundwater response to historical water transfers
- Yuba Basin groundwater quality

Although the North Yuba subbasin and South Yuba subbasin are hydraulically isolated from each other, the underlying geology of the two subbasins is similar. Therefore, the following regional geologic setting subsection discusses the two subbasins as if they are one.

### 2.3.1. Regional Geologic Setting

Alluvial deposits and nonwater-bearing rocks occurring in the groundwater basin are subdivided into geologic units called formations. Ages of these formations range from Paleozoic bedrock to the present-day overlying alluvial materials. The older Alluvium, the Laguna, and the Mehrten formations are significant water-bearing formations in the groundwater basin and comprise over 95 percent of the basin volume.

#### *Older Alluvium — Pleistocene*

The Older Alluvium is composed of floodplain deposits (Modesto Formation) and alluvial fan deposits (Riverbank Formation). Estimates on unit thickness range from 100 feet in the south to 150 feet in the Yuba River vicinity. Several wells with depths of 150 feet below ground surface (bgs) or less have yielded 1,000 to 1,200 gallons per minute (gpm).

#### *Laguna Formation – Pliocene*

The Laguna Formation is exposed along the eastern basin boundary and found in deep wells to the west. Its thickness ranges between 180 and 400 feet depending on specific locations and variable underlying and overlying contact units. Wells screened in the Laguna Formation are capable of producing up to 2,000 gpm.

#### *Mehrten Formation – Late Miocene to Pliocene*

The Mehrten Formation is of great importance to the fresh groundwater basin in the Central Valley. Generally, the Mehrten Formation yields large quantities of water to wells, although hydraulic conductivity in the Mehrten varies from place to place. Surficial exposures of this unit are limited to a few square miles in the eastern central portion of the basin south and east of the Yuba Goldfields, dipping to the west and extending to great depths.

### 2.3.2. Characterization of Subsurface Lithology

Lithologic data were compiled and analyzed to produce cross-sectional profiles characterizing the thickness and lateral extent of coarse and fine-textured deposits in the Yuba Basin. Lithologic data used in the Hydrogeologic Understanding report came primarily from well logs obtained from DWR and YCWA. Three hundred and thirty well logs were reviewed to select logs that were representative of lithologic conditions throughout the Yuba Basin. Approximately 130 lithologic logs were selected for further analysis. These 130 selected logs were then entered into a data management tool capable of generating lithologic cross sections. Data entered from these logs were classified in two ways in the data management tool:

- All lithology descriptions were assigned a unique symbol using the Unified Soil Classification System (USCS). Under the USCS, soils are grouped based on texture and composition.

- A second classification system was devised to assign a numeric value that enables statistical analysis and correlation of lithologic types, hereby termed "K-classes." The most permeable materials, sands and gravel, were assigned a K-class value of 1; more impermeable materials, such as silt and clay, were assigned a K-class value of 6.

**Table 2-1** shows K-classes assigned to Yuba basin lithologic data.

**Table 2-1. Lithologic Classification System Used for Yuba Basin Lithologic Data**

| K-Class | Description of Lithologies |
|---|---|
| 1 | Coarse sand and bigger gravel, cobble |
| 2 | Sand and smaller gravel, coarse to fine gravel, conglomerate |
| 3 | Coarse to fine sand, silty sand, fractured lithified rock |
| 4 | Sandy clay, clayey gravel, silty gravel |
| 5 | Gravel with fines, sand with fines, sandy silt, clayey sand, clay, silt, sand with shale |
| 6 | Clay, shale, sandstone and other lithified material of sedimentary, igneous, and metamorphic origin, crystalline rock, and hardpan |

As part of the Hydrogeologic Understanding Report (YCWA, 2008), six lithologic cross sections (three oriented north-south and three oriented east-west) were prepared to represent the thickness and extent of subsurface deposits. The overall trend in lithology type shows a westward fining, with coarse-grained materials in the eastern mountain front regions. Along the Bear and Yuba rivers, lithologic evidence of fluvial deposits exists, such as cobbles and coarse-grained sand and gravel. Several lenses of interconnected clay with silt, sand, and gravel are located throughout the basins and thin out toward the north and south.

### 2.3.3. Characterization of Groundwater Elevations, Groundwater Flow, and Basin Storage

Hydrographs of key wells showing historical trends of groundwater elevations in the North and South Yuba subbasins were prepared for the 2009 – 2010 Annual Measurement and Monitoring Report (YCWA, 2010) using data from DWR's water data library (available online at http://wdl.water.ca.gov). Hydrographs are presented in **Figure 2-2** and **Figure 2-3**, respectively. The hydrographs in the areas along the Feather River (in the North and South subbasins) show that groundwater levels have been generally stable in these areas since at least 1960, with some seasonal fluctuations between spring and summer conditions. **Figure 2-2** shows that groundwater elevations in central parts of the North Yuba subbasin (Ramirez Water District, Cordua Irrigation District, and Browns Valley Irrigation District) have shown apparent improvement starting in the 1970s, which coincides with the extension of surface water deliveries to Ramirez Water District. **Figure 2-3** shows that groundwater elevations in the central parts of the South Yuba subbasin have largely recovered from historical overdraft

conditions in the subbasin (in Brophy Water District, Dry Creek Mutual Water Company, South Yuba Water District, and Wheatland Water District). The hydrographs for these areas also show a reverse in the declining trend of groundwater levels, starting in the 1980s, which coincides with the extension of surface water deliveries to the South Yuba subbasin. These hydrographs in the central parts of the North and South Yuba subbasins also show the effect of groundwater substitution transfers (during 1991, 1994, 2001, 2002, 2008, and 2009), in the form of reduced groundwater levels followed by recovery to pre-transfer levels.

The general groundwater flow in Yuba County is from east to west, from the mountain front recharge regions into the Central Valley discharge region. **Figure 2-4** shows a map of interpolated spring 2010 groundwater elevations based on the most recent groundwater elevation data collected by DWR and Beale Air Force Base (AFB). The map indicates that groundwater flows from about 140 feet above mean sea level (msl) in the east to 30 feet above msl toward the western border of Yuba County. These general spring 2009 groundwater flow conditions are similar to historical conditions, In the past decade, spring groundwater elevations have generally ranged from 140 feet msl to 30 feet msl across the basin, including spring 2004 and spring 2007 (MWH, 2008).

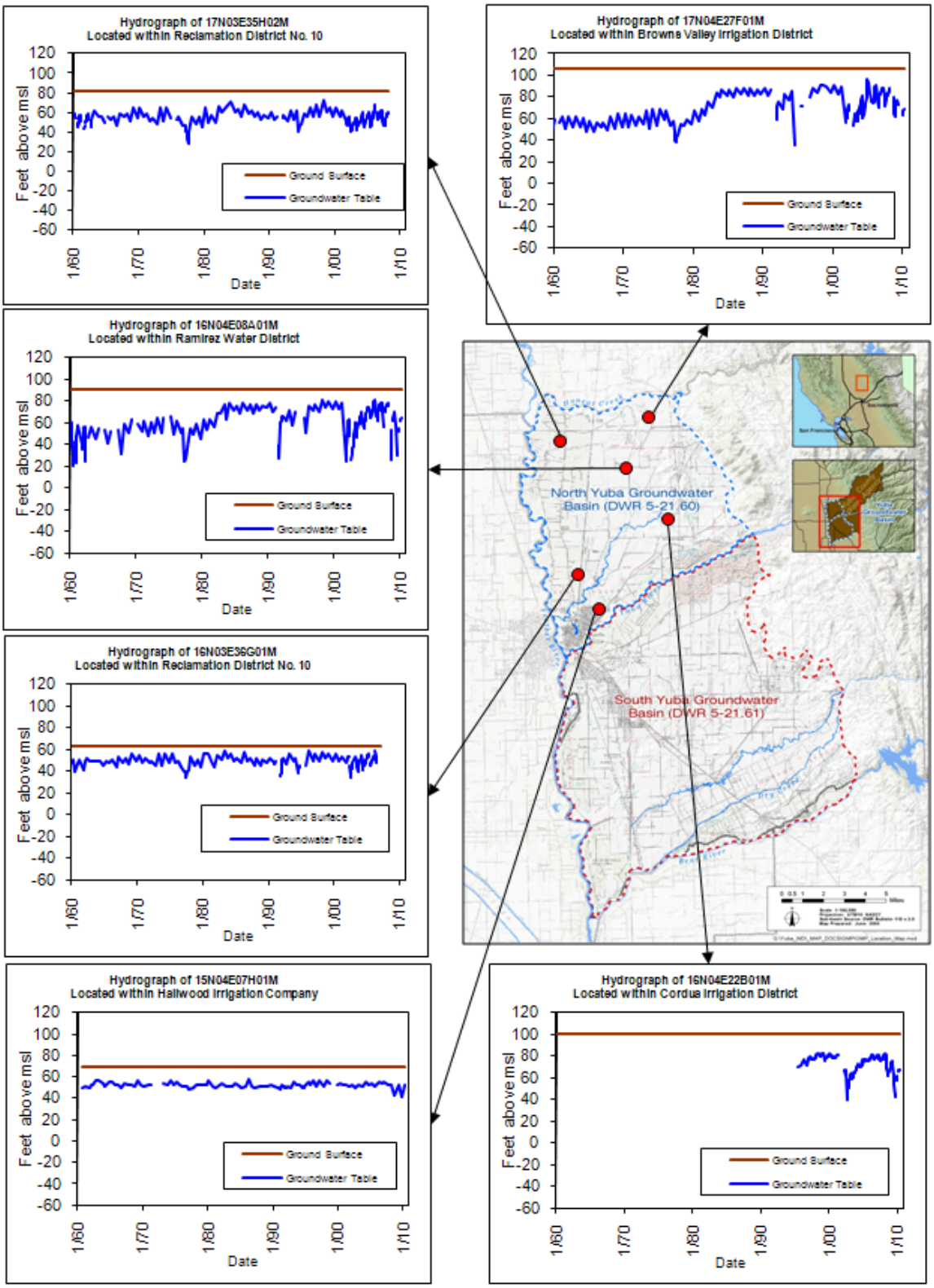



**Figure 2-2. Key Groundwater Hydrographs in North Yuba Groundwater Subbasin**

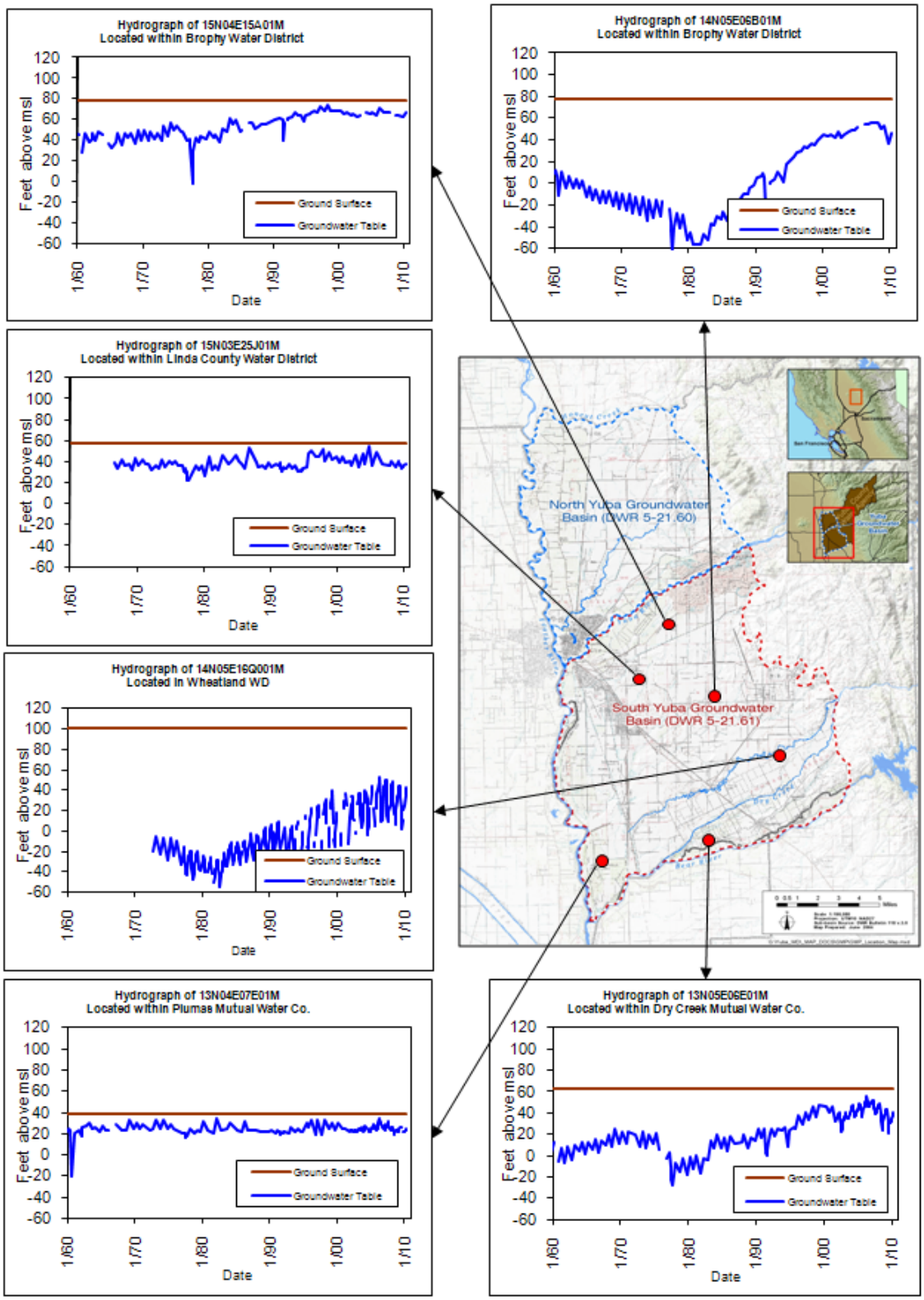



**Figure 2-3. Key Groundwater Hydrographs in South Yuba Groundwater Subbasin**

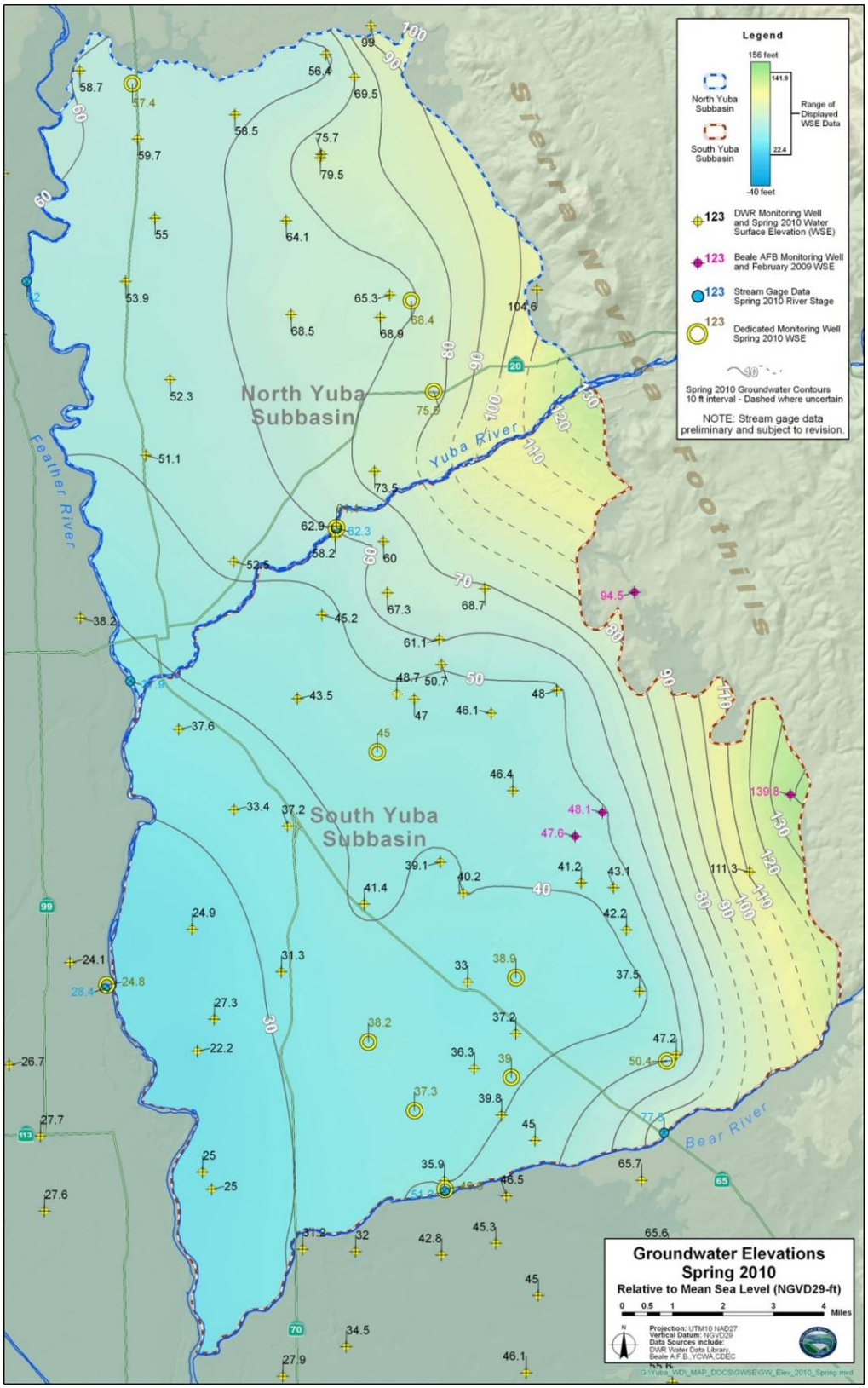



**Figure 2-4. Spring 2010 Groundwater Elevations in Yuba Basin**

The volume of freshwater within the Yuba County groundwater basin was estimated by evaluating the storage characteristics of aquifer material occurring above the base of freshwater and below the spring 2003 groundwater surface. Total freshwater in storage in Yuba County's groundwater basin is estimated to be 7.5 MAF. The base of freshwater is estimated to range from less than 300 ft. in the eastern portion of the basin to about 700 ft in the western portion, with depths to as much as 900 ft at the Feather River in the South Subbasin. However, since most wells are screened at less than 300 feet bgs, readily accessible freshwater is estimated at 4.0 MAF. A relationship, shown in **Figure 2-5**, was developed between groundwater storage in the Yuba Basin and groundwater elevation, based on spring 2003 conditions. **Figure 2-5** indicates that 4.0 MAF of freshwater are stored to 300 feet below the spring 2003 groundwater surface conditions. Similarly, 2.8 MAF of freshwater are stored to 200 feet below the spring 2003 conditions. This analysis suggests that past groundwater substitution transfers depleted only a small portion of the basin capacity.

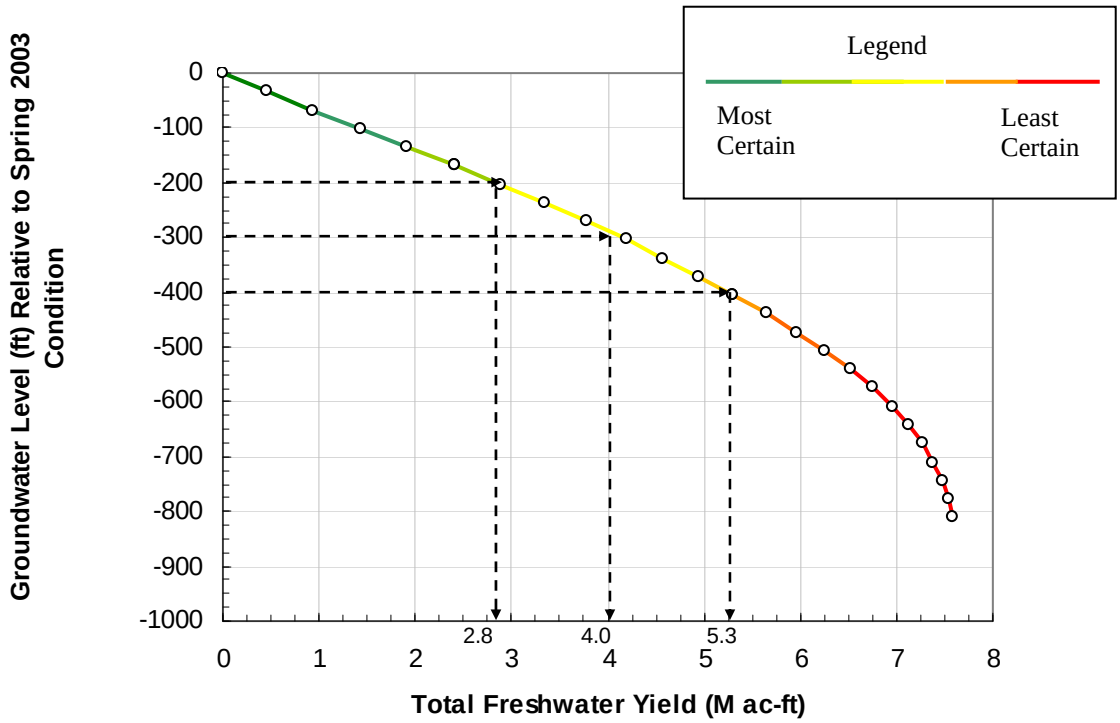



**Figure 2-5. Freshwater Yield vs. Depth Relative to Spring 2003 Measured Groundwater Levels in Yuba Basin**

### 2.3.4. Assessment of Groundwater Budget Components

The groundwater budget study presented here is an example of a framework for analyzing major components of water supply and water demand in the basin. This framework can be used as a guide to deal with the primary challenge typically encountered in managing groundwater resources: balancing water supply and water demand.

Water budget components shown in **Figure 2-6** are qualitative representations of major water input components (water supply) into the Yuba Basin and major water output components (water demand) from the Yuba Basin. The overall contribution of natural recharge from precipitation, while anticipated to be relatively large, should be viewed in conjunction with other water inputs to the basin, such as inflow across basin boundaries and percolation from applied surface water in agricultural lands. Because the majority of water demand is crop water use from irrigated agriculture, runoff from irrigated lands may be a significant basin-scale component of the groundwater budget in the Yuba Basin. Agricultural and urban water uses (in the right pie chart) in Yuba County are discussed further in Section 2.5.

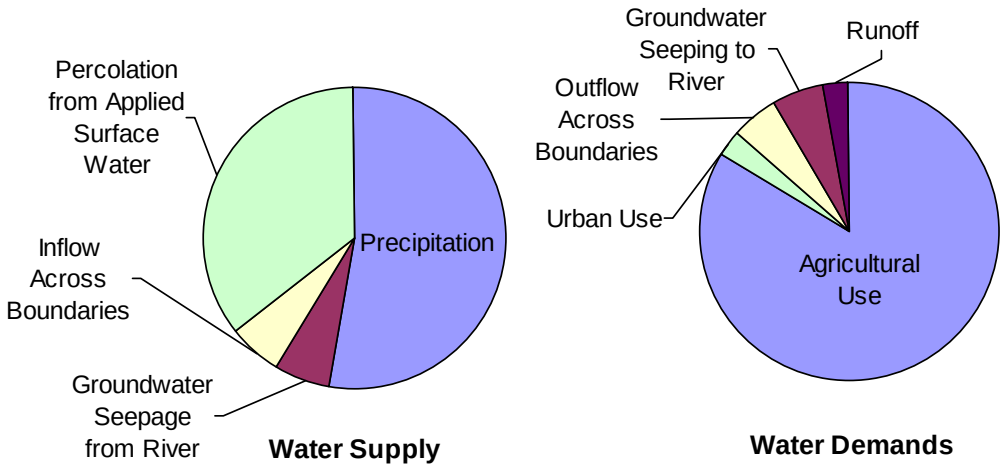



**Figure 2-6. Components of Hypothetical Groundwater Budget in Yuba Basin**

### 2.3.5. Groundwater Response to Historical Water Transfers

YCWA has performed six groundwater substitution transfers, beginning in 1991. Groundwater substitution transfers are implemented by YCWA member units when member unit irrigators pump groundwater for irrigation instead of using their normal surface water deliveries from the Yuba River. The surface water, stored in New Bullards Bar Reservoir, is then scheduled by YCWA for release down the Yuba River to the Delta at a time when it can be delivered to a purchaser of the water. Groundwater substitution transfer planning commences early in the water year and continues through the winter and early spring, with an assessment of basin conditions, determination of expected groundwater levels under various pumping plans, and determinations that expected levels will be not result in either overdraft of the basin or substantial impacts to third parties. An improved understanding of basin conditions has resulted from developing stress-response relationships correlating pumping with groundwater level response. **Figure 2-7** shows the total volume of groundwater pumped by member units for transfer in the Yuba Basin during the six groundwater substitution years. **Figures 2-8** and **2-9** show the volume of groundwater pumped by member unit for the north and south Yuba subbasins in these years. **Table 2-2** shows monthly pumping volume by member unit, where data are available, during the six groundwater substitution transfer years.

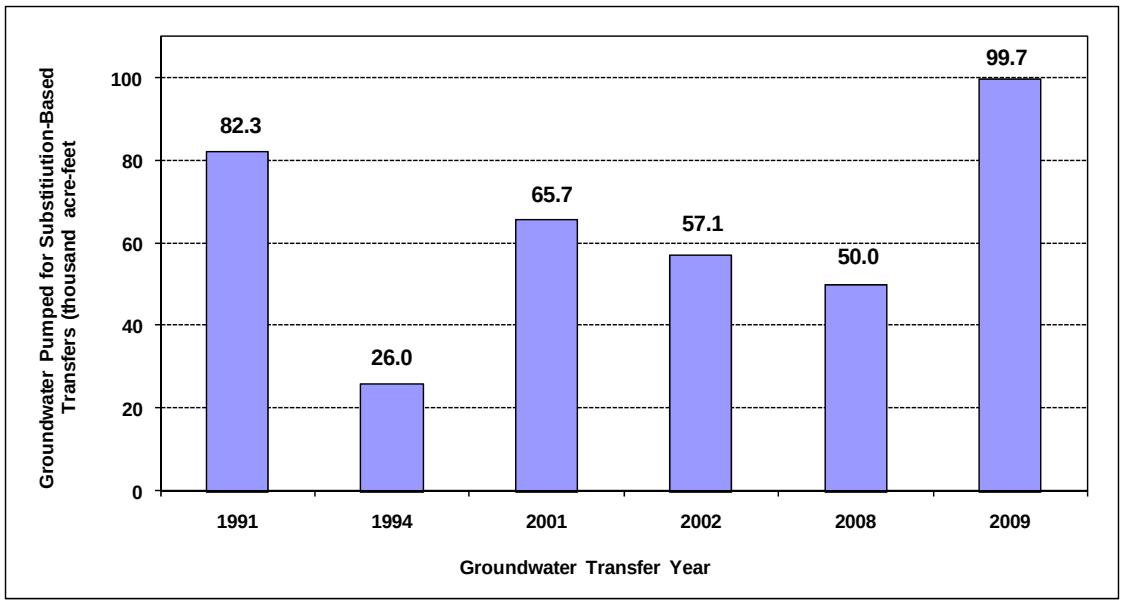



**Figure 2-7. Groundwater Pumped for Substitution-Based Transfers in Yuba Basin**

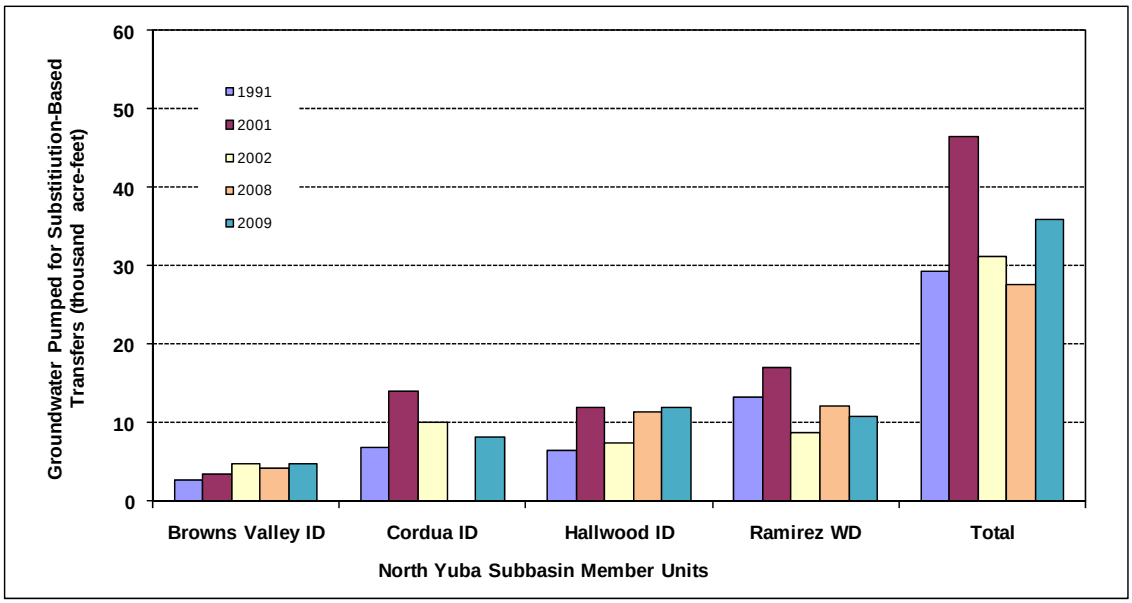



**Figure 2-8. Groundwater Pumped for Substitution-Based Transfers in North Yuba Subbasin, 1991 – 2009**

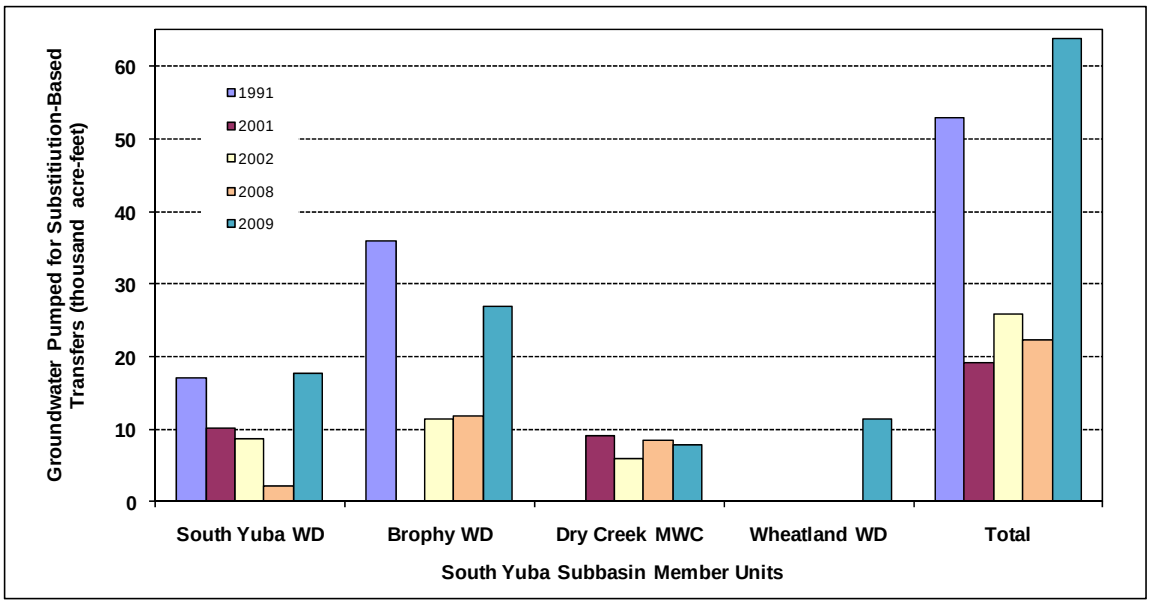



**Figure 2-9. Groundwater Pumped for Substitution-Based Transfers in South Yuba Subbasin, 1991 – 2009**

**Table 2-2. Yuba County Water Agency Historical Groundwater Substitution Pumping[a]**

| Member Unit | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **1991 Pumping Volumes (acre-feet)** | | | | | | | | | | |
| Brophy Water District | NA | NA | NA | NA | NA | NA | NA | NA | NA | 36,000 |
| Browns Valley Irrigation District | NA | NA | NA | NA | NA | NA | NA | NA | NA | 2,679 |
| Cordua Irrigation District | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6,803 |
| Dry Creek Mutual Water | NA | NA | NA | NA | NA | NA | NA | NA | NA | - |
| Hallwood Irrigation Company | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6,510 |
| Ramirez Water District | NA | NA | NA | NA | NA | NA | NA | NA | NA | 13,277 |
| South Yuba Water District | NA | NA | NA | NA | NA | NA | NA | NA | NA | 17,000 |
| Wheatland Water District | NA | NA | NA | NA | NA | NA | NA | NA | NA | - |
| Subtotal | NA | NA | NA | NA | NA | NA | NA | NA | NA | 82,268 |
| **2001 Pumping Volumes[b] (acre-feet)** | | | | | | | | | | |
| Brophy Water District | - | - | - | - | - | - | - | - | - | - |
| Browns Valley Irrigation District[c] | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3,500 |
| Cordua Irrigation District | - | 1,606 | 2,887 | 2,935 | 2,965 | 1,293 | 2,314 | - | - | 14,000 |
| Dry Creek Mutual Water | 104 | 1,131 | 2,364 | 2,006 | 2,888 | 668 | - | - | - | 9,161 |
| Hallwood Irrigation Company | 492 | 1,879 | 2,075 | 2,618 | 2,056 | 900 | 1,999 | - | - | 12,020 |
| Ramirez Water District | 712 | 2,228 | 2,627 | 2,229 | 2,057 | 1,373 | 2,149 | 2,102 | 1,532 | 17,009 |
| South Yuba Water District | 91 | 2,758 | 2,955 | 3,196 | - | 996 | - | - | - | 9,996 |
| Wheatland Water District | - | - | - | - | - | - | - | - | - | - |
| Subtotal | 1,398 | 9,602 | 12,909 | 12,983 | 9,967 | 5,229 | 6,463 | 2,102 | 1,532 | 65,684 |

**Table 2-2. Yuba County Water Agency Historical Groundwater Substitution Pumping[a] (Continued)**

| Member Unit | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **2002 Pumping Volumes[d] (acre-feet)** | | | | | | | | | | |
| Brophy Water District | | 187 | 1,350 | 4,965 | 2,938 | 411 | 1,440 | - | - | 11,292 |
| Browns Valley Irrigation District | - | 349 | 307 | 739 | 832 | 810 | 868 | 992 | - | 4,897 |
| Cordua Irrigation District | - | 957 | 1,927 | 3,912 | - | 2,325 | 938 | - | - | 10,059 |
| Dry Creek Mutual Water | - | 747 | 562 | 1,971 | 1,632 | 964 | - | - | - | 5,876 |
| Hallwood Irrigation Company | - | 728 | 947 | 2,884 | 2,029 | 794 | - | - | - | 7,382 |
| Ramirez Water District | - | 615 | 1,345 | 2,926 | 1,257 | 717 | 1,952 | - | - | 8,812 |
| South Yuba Water District | - | 434 | - | 5,919 | 1,676 | - | 739 | - | - | 8,767 |
| Wheatland Water District | - | - | - | - | - | - | - | - | - | - |
| Subtotal | - | 4,017 | 6,438 | 23,316 | 10,364 | 6,021 | 5,937 | 992 | - | 57,084 |
| **2008 Pumping Volumes[e] (acre-feet)** | | | | | | | | | | |
| Brophy Water District | 719 | 1,877 | 3,226 | 2,915 | 2,364 | 342 | 227 | 155 | - | 11,825 |
| Browns Valley Irrigation District | 338 | 512 | 596 | 681 | 686 | 750 | 564 | 107 | - | 4,236 |
| Cordua Irrigation District | - | - | - | - | - | - | - | - | - | - |
| Dry Creek Mutual Water | 715 | 1,317 | 1,761 | 1,750 | 1,619 | 859 | 403 | - | - | 8,424 |
| Hallwood Irrigation Company | 366 | 1,551 | 2,561 | 2,401 | 2,785 | 1,132 | 270 | 256 | - | 11,321 |
| Ramirez Water District | 853 | 1,321 | 2,289 | 2,054 | 1,509 | 1,408 | 2,050 | 596 | - | 12,081 |
| South Yuba Water District | - | 390 | 403 | 512 | 476 | 279 | 42 | - | - | 2,103 |
| Wheatland Water District | - | - | - | - | - | - | - | - | - | - |
| Subtotal | 2,991 | 6,968 | 10,837 | 10,313 | 9,439 | 4,771 | 3,556 | 1,114 | - | 49,989 |
| **2009 Pumping Volumes[f] (acre-feet)** | | | | | | | | | | |
| Brophy Water District | - | 405 | 5,283 | 8,131 | 8,289 | 2,461 | 2,388 | - | - | 26,957 |
| Browns Valley Irrigation District | - | 54 | 1,224 | 1,154 | 933 | 357 | 1,112 | - | - | 4,834 |
| Cordua Irrigation District[f] | - | - | - | 3,485 | 3,644 | 1,133 | - | - | - | 8,262 |
| Dry Creek Mutual Water | - | 709 | 1,360 | 2,028 | 1,611 | 1,352 | 679 | - | - | 7,739 |
| Hallwood Irrigation Company | - | 38 | 2,505 | 2,616 | 3,047 | 1,821 | 1,988 | - | - | 12,015 |
| Ramirez Water District | - | 175 | 2,324 | 2,284 | 2,137 | 1,162 | 2,708 | - | - | 10,790 |
| South Yuba Water District | - | 389 | 2,804 | 4,688 | 4,537 | 1,690 | 3,497 | - | - | 17,605 |
| Wheatland Water District | - | 419 | 1,824 | 3,943 | 2,691 | 1,187 | 1,409 | - | - | 11,473 |
| Subtotal | - | 2,189 | 17,324 | 28,329 | 26,889 | 11,163 | 13,781 | - | - | 99,675 |
| **2001 + 2002 + 2008 + 2009 Pumping Volumes** | | | | | | | | | | |
| Monthly Volume (acre-feet) | 4,389 | 22,776 | 47,508 | 74,941 | 56,659 | 27,184 | 29,737 | 4,208 | 1,532 | 268,934 |
| Monthly Distribution (%) | 2% | 8% | 18% | 28% | 21% | 10% | 11% | 2% | 1% | 100% |

Notes
[a] Total groundwater pumped and transferred in 1994 was 26,000 acre-feet. Monthly and member unit data not available.
[b] Includes 1,044 acre-feet in addition to water transfer amount.
[c] Browns Valley Irrigation District's transfer of 3,500 acre-feet was not administered by Yuba County Water Agency
[d] Includes 1,826 acre-feet in addition to water transfer amount.
[e] Includes 1,114 acre-feet in addition to water transfer amount.
[f] Includes 2.513 acre-feet in addition to water transfer amount.
[g] Cordua Irrigation District's transfer of 8,262 acre-feet was not administered by Yuba County Water Agency.
Key:
- = no pumping
NA =not available

Groundwater elevation data from 2001 and 2004 summarized in the Hydrogeologic Understanding report a show similar response and recovery pattern (YCWA, 2008). Groundwater elevation data from spring 2004 suggest that in most locations, groundwater elevations recovered to, and even exceeded, spring 2001 conditions. In some areas, full

recovery to spring 2001 conditions occurred by spring 2005. This indicates that groundwater levels recovered to pre-pumping spring conditions within 2 to 3 years following the transfers. It is anticipated that future pumping volumes within past groundwater substitution transfer volumes would result in responses and recoveries similar to those experienced historically under similar hydrologic conditions.

In 2009, during the second year of groundwater substitution transfers and in the third year of relatively dry conditions, irrigators in Reclamation District 10 notified the Member Units and YCWA that certain wells within Reclamation District 10 were experiencing substantially reduced discharge rates attributed to lower groundwater levels. Groundwater levels in this area in the summer and fall of 2009 were lower than the past six years. Lower groundwater elevations in 2009 are believed to be due to a combination of dry hydrologic conditions, increased irrigation pumping due to dry conditions, and groundwater substitution transfer pumping. However, groundwater elevations in 2009 were within the range of elevations observed in this area during previous dry periods, most recently in the 2001 to 2002 time period. In response to concerns of the Reclamation District 10 irrigators, Member Units initiated an investigation of groundwater levels and pumping rates potentially contributing to reduced groundwater elevations within Reclamation District 10. Additionally, Reclamation District 10 irrigators monitored water elevations in production wells throughout Reclamation District 10 in 2010 and plan to do additional monitoring in the future. Both parties plan to explore additional actions to address the Reclamation District 10 irrigators' concerns.

### 2.3.6. Yuba Basin Groundwater Quality

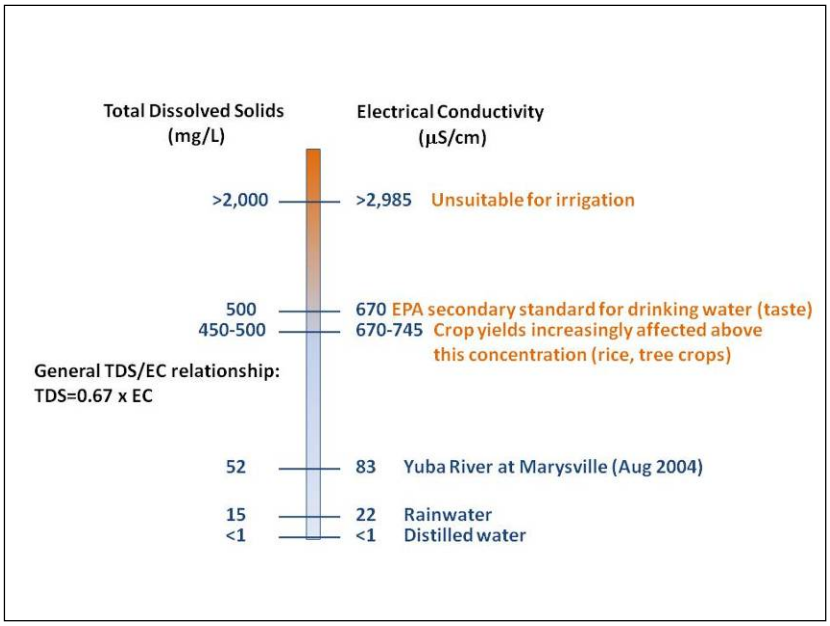
Groundwater quality data have been collected in the Yuba Basin since 1965. YCWA coordinates with DWR-North Central Region on conducting annual surveys of water quality in selected wells in the North and South Yuba subbasins. DWR-North Central Region regularly collects water quality samples from 10 wells (5 in the North and 5 in the South Yuba subbasins). A 2008 survey of water quality monitoring wells reported that no sample in wells less than 200 feet deep exceeded either the primary or secondary drinking water maximum contaminant level (MCL) in the North Yuba subbasin, as shown in **Table 2-3**. However, water quality in one well in the South Yuba subbasin exceeded the primary MCL for nitrate. Furthermore, water in wells greater than 200 feet deep commonly approach or exceed the secondary MCL for total dissolved solids (TDS) of 500 milligrams per liter (mg/L), and show TDS concentrations elevated above historical concentrations (**Table 2-3**). Based on historical data summarized in the Hydrogeologic Understanding report, most areas in the North and South Yuba subbasins show trends of increasing concentrations of calcium, bicarbonate, chloride, alkalinity, and TDS, as well as electrical conductivity (EC) (YCWA, 2008).

**Table 2-3. Summary of Water Quality Indicators from DWR Survey for Yuba Subbasins**

| Constituent | Yuba Subbasin | Water Quality Limit (mg/L) | Water Quality Range (Minimum – Maximum) (mg/L) | |
|---|---|---|---|---|
| | | | 1965 to 2007 Survey of Water Quality Monitoring Wells | 2008 Survey of Water Quality Monitoring Wells |
| Arsenic | North | 0.010[1] | - | - |
| | South | | - | - |
| Nitrate | North | 45 (1) | ND – 56* | 2.7 |
| | South | | ND – 29 | ND – 77.6* |
| Sodium | North | - | 8 – 23 | 17 |
| | South | | 5 – 28<br>{24 – 115*} | 22 – 28<br>{72 – 115} |
| Total Dissolved Solids | North | 500[2] | 142 – 551* | 90 |
| | South | | 97 – 414<br>{373 – 1418*} | 243 – 403<br>{898 – 1410} |

Notes:
[1] Primary Drinking Water Maximum Contaminant Level (MCL)
[2] Secondary Drinking Water MCL
Key:
- = the analyte was not measured
* = Water quality that exceeds the MCL
{} = Water quality samples from deep wells (depth greater than 200 feet)
mg/L = milligram per liter
ND = No detect (concentration of constituent in the sample is below detection limit)

Although the TDS MCL was developed to regulate the taste of drinking water, elevated TDS concentrations can also result in negative impacts to irrigated agriculture. A scale showing typical TDS concentrations associated with different types of freshwater, including concentrations associated with potential damage to crops, is shown in **Figure 2-10**. EC, which is highly dependent on the concentration of dissolved constituents in water, is a good indicator of TDS. **Figure 2-10** also shows the general relationship between EC and TDS values.




Key:
EC = electrical conductivity
µS/cm = MicroSiemens per centimeter
mg/L = milligrams per liter
EPA = Environmental Protection Agency
TDS = total dissolved solids

**Figure 2-10. Typical Electrical Conductivity Values**

The most current state of groundwater salinity is reflected by field EC data collected by YCWA member units from 185 transfer wells during the 2009 groundwater substitution transfer. As shown in **Figure 2-11**, it can generally be observed that groundwater salinity increases with distance from the Yuba River. EC values ranged from 275 microSiemens per centimeter (µS/cm) in Hallwood Irrigation Company to 1,100 µS/cm in Wheatland Water District in 2009. Across the Yuba Basin, EC values were highest in the Wheatland area of the South Yuba subbasin, measuring a maximum of 1,100 µS/cm. In South Yuba Water District, the maximum EC measured was 800 µS/cm, and EC values reached 725 µS/cm in Brophy Irrigation District. In the North Yuba subbasin, a maximum EC value of 550 µS/cm was measured in Cordua Irrigation District, and maximum values of 500 µS/cm were found in Ramirez Irrigation District and Browns Valley Irrigation District. In 2010, Reclamation District 10 landowners reported EC values ranging from 300 to 1,275 µS/cm.

Water quality data can also indicate groundwater flow and recharge patterns. Stable isotope data collected by DWR and summarized in the Hydrogeologic Understanding report suggest that water recharging the Yuba Basin aquifers comes from two major sources: (1) Sierra Nevada snowmelt and runoff and (2) locally derived precipitation (YCWA, 2008). Additionally, deeper aquifer zones with heavier isotopic ratios may represent paleogroundwater sourced from local precipitation that occurred under cooler climatic conditions than those today.

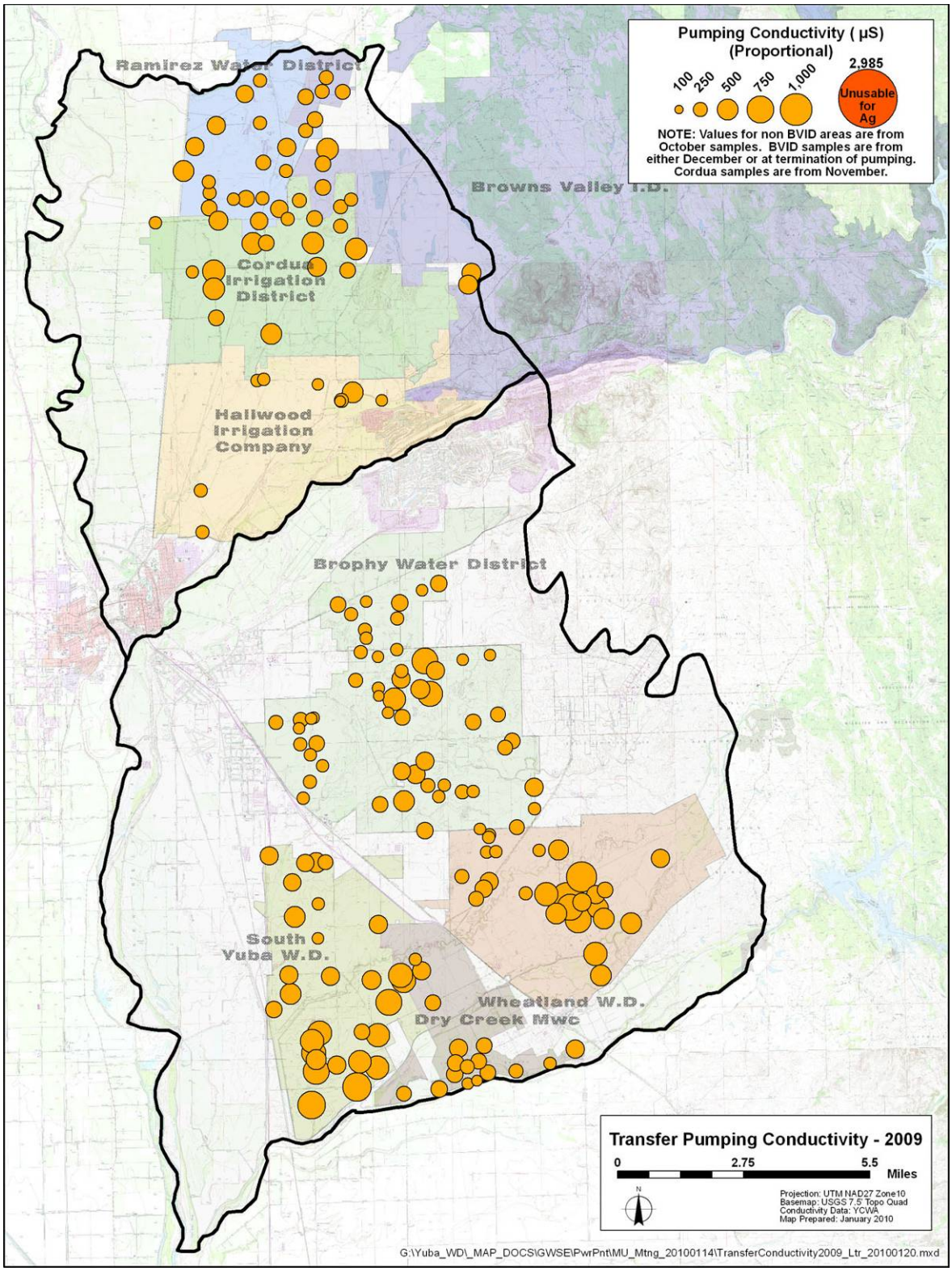



**Figure 2-11. Electrical Conductivity in Yuba Basin During 2009 Groundwater Substitution Transfer**

### 2.3.7. Groundwater in Sierra Foothills

The Sierra Foothill region of Yuba County to the east of the groundwater basin is largely supplied by groundwater from fractured rock aquifers; because of the highly unreliable and unpredictable nature of fractured-rock wells, this portion of Yuba County is not covered by this GMP.

## 2.4. WATER USE IN YUBA COUNTY

Within the County, water purveyors currently use both surface water and groundwater to meet demand. YCWA, by its Act, wholesales water to entities authorized to purvey water. YCWA has water service agreements to deliver surface water to its member units and several former river diverters. The member units include Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Dry Creek Mutual Water Company, Hallwood Irrigation Company, Ramirez Water District, South Yuba Water District, and Wheatland Water District. In addition to the surface water delivered by the YCWA, the member units have existing capacity to pump groundwater to meet part of their demand. Approximately 30 percent of the county's irrigation supply comes from groundwater and most groundwater pumping for irrigation occurs south of the Yuba River.

The five municipal purveyors located in the County rely exclusively on groundwater to meet their needs. The municipal purveyors are California Water Service, Linda County Water District, the City of Wheatland, Olivehurst Public Utility District (OPUD), and Beale AFB. Other water purveyors in the County use a combination of groundwater and surface water supplies to meet demand. Locations of all water purveyors within the County are shown in **Figure 2-12**. In addition, most rural domestic water needs are met with groundwater.

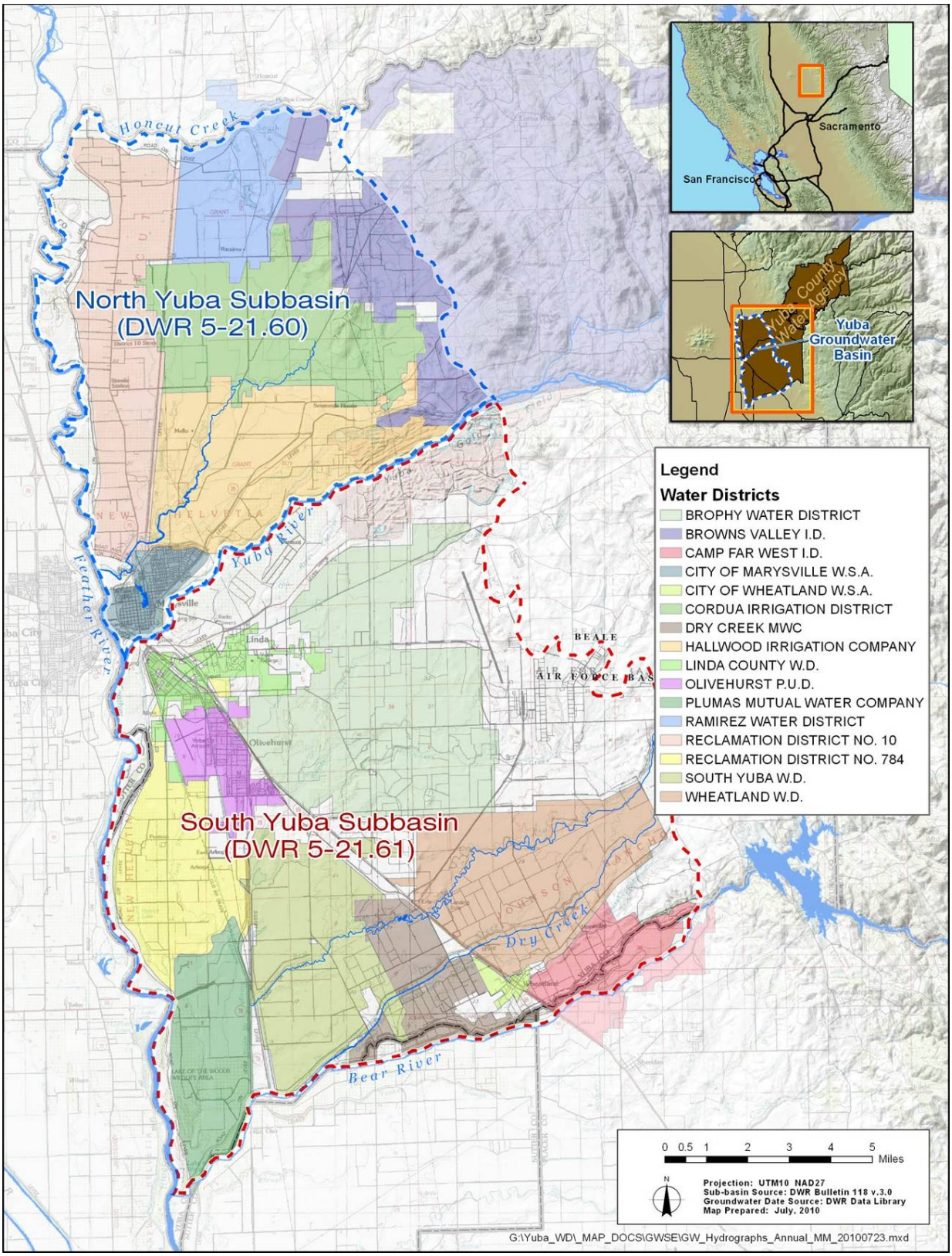



**Figure 2-12. Location of Water Purveyors Within Yuba County**

Use of groundwater in Yuba County for irrigation and municipal supply developed gradually as the need for water increased. This provided benefits to water users in the basin, but as early as the 1950s, groundwater levels in southern Yuba County were falling because of overdraft. During this period, groundwater pumping exceeded the rate of recharge to the groundwater basin.

Partly in response to this groundwater level decline, YCWA began to provide Yuba River water to Brophy Water District and South Yuba Water District in 1983. Monitoring indicates that groundwater levels have recovered since the early 1980s. To promote recovery of groundwater levels in the Wheatland area, YCWA and Wheatland Water District completed the Yuba-Wheatland Canal Project to deliver surface water to its farmers in 2009. Currently both the North Yuba subbasin and the South Yuba subbasin are in good health. Water levels have rebounded to near historical high levels in most areas, and a substantial volume of water has replenished the basins, particularly the South Yuba subbasin.

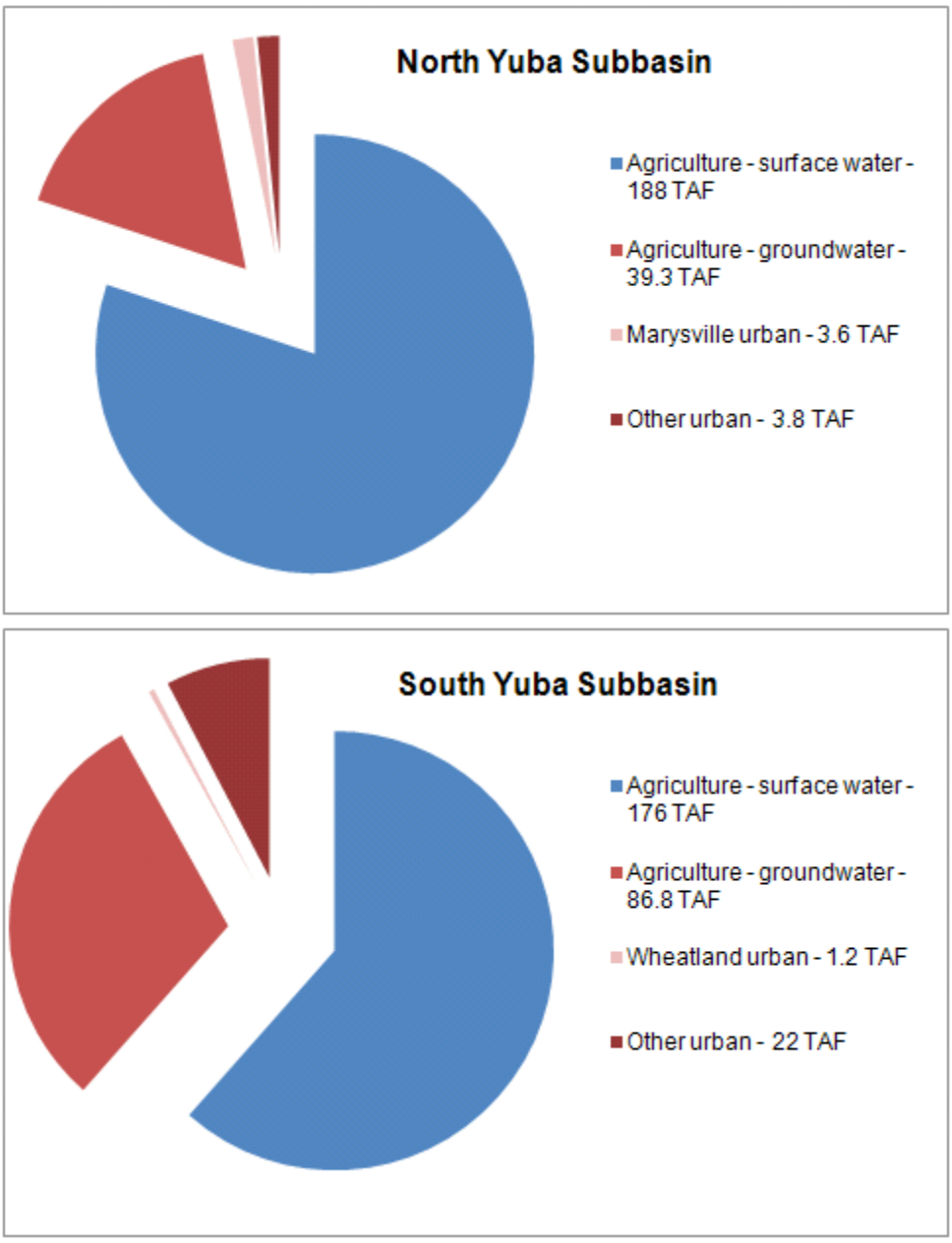
Irrigation in Yuba County is primarily supplied by surface water. Exceptions include Reclamation District 10 in the North Yuba subbasin and parts of Reclamation District 784 in the South Yuba subbasin, where groundwater is the primary source of irrigation water. All YCWA member units in both subbasins use groundwater to supplement surface water supply for agricultural use.

To represent current water demand conditions, water use in 2005 in the Yuba Basin was estimated for the 2008 IRWMP based on land use and climate data (Yuba County, 2008). Water use in the Yuba Basin in 2005 is shown in **Table 2-4** and **Figure 2-13**. As shown in **Table 2-4**, total crop water use for the entire Yuba Basin in 2005 was estimated to be approximately 491 TAF. Of this amount, an estimated 126 TAF of groundwater were pumped to meet agricultural demands, 39 TAF in the North Yuba subbasin and 87 TAF in the South Yuba subbasin. Estimates of 2005 urban water use in the IRWMP were based on an evaluation of current specific plans. Estimated values were intended to include all water uses associated with the urban land use categories, including residential, commercial, and industrial uses. As shown in **Table 2-4**, urban water use in 2005 was estimated to total about 31 TAF. The Olivehurst-Linda-Plumas Lake area had the greatest urban water use in Yuba County in 2005.

## Table 2-4. Water Use in Yuba County, 2005

| Area | Agricultural Uses (acre-feet) | | | Urban Uses (acre-feet) | | | Total (acre-feet) |
|---|---|---|---|---|---|---|---|
| | Surface Water | Ground-water | Total | Surface Water | Ground-water | Total | |
| ***North Yuba Subbasin*** | | | | | | | |
| North Yuba Subbasin (except City of Marysville) | 188,500 | 39,000 | 227,500 | 0 | 3,800 | 3,800 | 231,300 |
| City of Marysville | 0 | 300 | 300 | 0 | 3,600 | 3,600 | 3,900 |
| Subtotal | 188,500 | 39,300 | 227,800 | 0 | 7,400 | 7,400 | 235,200 |
| ***South Yuba Subbasin*** | | | | | | | |
| South Yuba Subbasin (except City of Wheatland) | 170,100 | 82,700 | 252,800 | 0 | 22,000 | 22,000 | 274,800 |
| City of Wheatland | 6,300 | 4,100 | 10,400 | 0 | 1,200 | 1,200 | 11,600 |
| Subtotal | 176,400 | 86,800 | 263,200 | 0 | 23,200 | 23,200 | 286,400 |
| Total | 364,900 | 126,100 | 491,000 | 0 | 30,600 | 30,600 | 521,600 |

*Source: Yuba County, 2008*

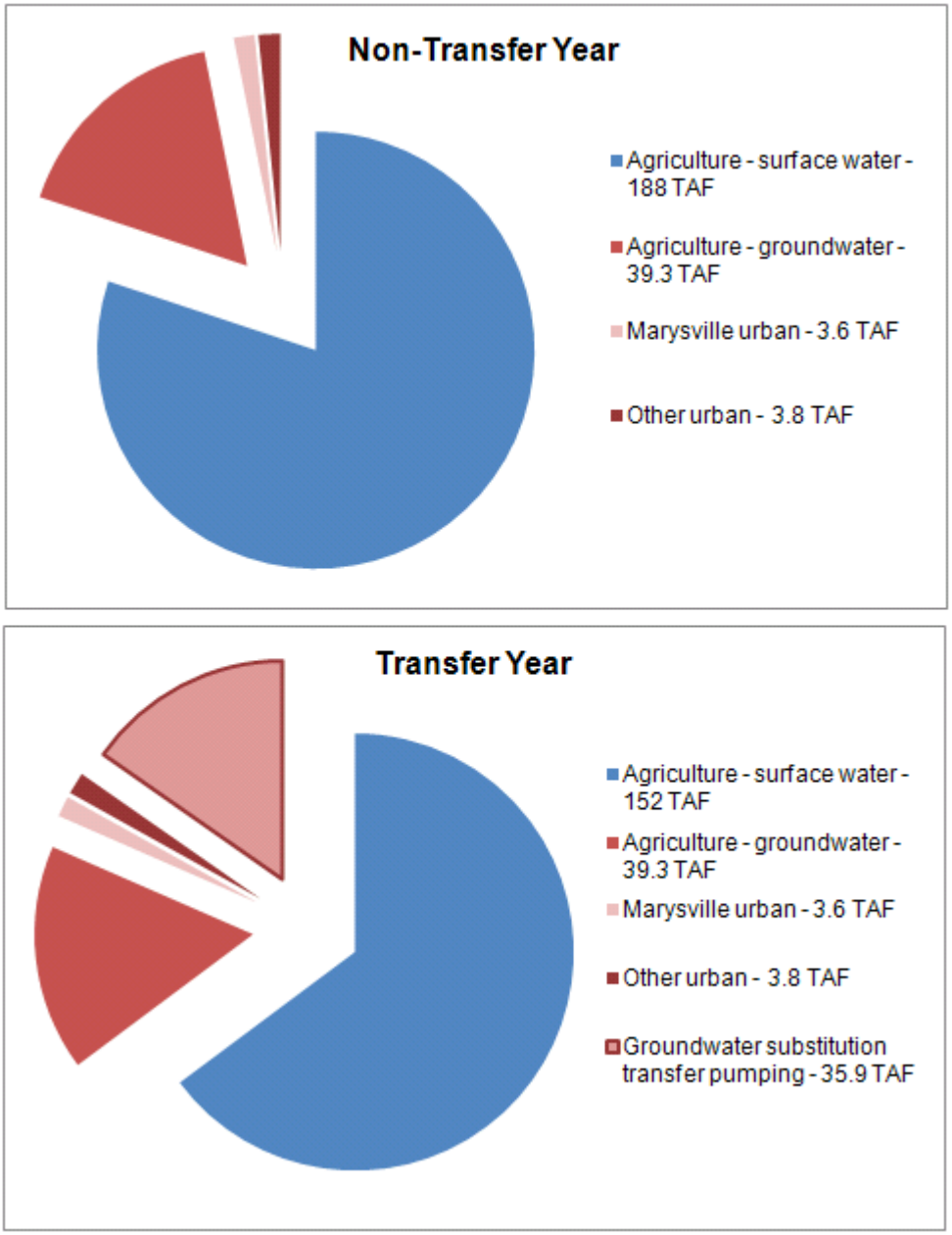



Key:
Blue indicates surface water use, red colors indicate groundwater use.
TAF=thousand acre-feet

**Figure 2-13. Water Demand in Yuba Basin, 2005**

YCWA groundwater supplies also help meet demand around the State through groundwater substitution transfers, as described in Section 1. Groundwater substitution transfers have been completed in 6 relatively dry years, including 1991, 1994, 2001, 2002, 2008, 2009, and 2010. **Figure 2-14** shows an example of the change in groundwater and surface water demands in the North Yuba subbasin during a groundwater substitution transfer year. During such a year, groundwater demand can double. The groundwater pumped during a transfer year is recharged by natural sources in subsequent wet seasons and when surface water is

delivered during non-transfer years, generally within 2 to 3 years after substitution pumping ends (MWH, 2008).




Note: Water demand data from 2005; groundwater substitution transfer volume from 2009
Key:
Blue indicates surface water use, red colors indicate groundwater use.
TAF=thousand acre-feet

**Figure 2-14. Example Comparison of North Yuba Subbasin Water Demand During Groundwater Substitution Transfer and Non-transfer Years**

## 2.5. NEW AND FUTURE TOOLS, FACILITIES, AND OPERATIONS

Since completion of the 2005 GMP, YCWA has engaged in a variety of activities to improve its water resources management capabilities. New projects and operations since 2005 are described below.

### 2.5.1. Yuba- Wheatland Canal Project

When the YRDP was constructed in the late 1960s to deliver surface water to YCWA member units and produce hydropower, financing limitations resulted in postponing the construction of conveyance facilities that would have delivered water to Wheatland Water District. Continued use of groundwater for irrigation in Wheatland Water District, as in other areas of the south subbasin from the 1940s through the 1980s resulted in further groundwater overdraft and degradation of groundwater quality because of increased salinity in the Wheatland area. Delivery of surface water to other member units in the south subbasin has greatly improved water levels in the Wheatland Water District area, but pumping continues to affect groundwater quality.

To complete surface water delivery to the South Yuba subbasin and bring surface water to Wheatland Water District, YCWA and Wheatland Water District applied for and received a grant from DWR. This grant and local funds financed completion of Phase 1 of the Yuba-Wheatland Canal Project in 2009. The completed Phase 1 provides surface water to approximately 7,750 acres of the approximately 9,200 total acres to be served upon completion of Phase 2, the second and final phase. Under Phase 1, Wheatland Water District's contract with YCWA provides for a total allocation (base and supplemental) of 23,092 acre-feet (AF) per year. The completion of Phase 2 will provide Wheatland Water District with a total of 40,230 acre-feet per year.

### 2.5.2. Installation of New Monitoring Wells

YCWA, in coordination with DWR, is making continuous efforts to improve water management operations within the basin. In 2006, YCWA installed eight new dedicated monitoring wells to supplement the existing monitoring well network with grant funding through DWR's Local Groundwater Assistance Program and Proposition 13, the Safe Drinking Water, Clean Water, Watershed Protection, Flood Protection Act of 2000. Groundwater elevation and water quality data collected from these wells will improve basin understanding, including characterization of recharge and discharge areas.

### 2.5.3. Lower Yuba River Accord Operations

Integration of surface water and groundwater supplies has been a key element of the YCWA transfer program for the past 14 years. Under the Yuba Accord, this integration is used to provide a supplemental dry year supply of groundwater to irrigate local farmland and facilitate use of storage in New Bullards Bar Reservoir to meet instream flow objectives of the Yuba Accord. The Yuba Accord thereby improves instream flows in the lower Yuba River for salmon and other fish species and, additionally, improves water supply reliability for other areas of California while maintaining local supply reliability.

### 2.5.4. Groundwater Adaptive Management Tool

In 2008, a groundwater adaptive management tool (GAMT) was developed to quantitatively integrate groundwater basin conditions into YCWA's planning process. The GAMT is a regression-based spreadsheet tool based on the wealth of historical groundwater level data in the Yuba River basin. In coordination with the Yuba River Basin Model, the existing surface water planning tool, the GAMT helps address groundwater substitution transfer requests from DWR and other potential water purchasers. The GAMT can be used in the following ways:

- As a predictive tool of basin response and recovery to plan for future groundwater transfers
- To help create a report documenting the status of the groundwater basin, pre- and post-transfers

The GAMT contributes to proactive management of the YCWA conjunctive use program by helping to accomplish the following:

- Prevent adverse short-term effects on other surface water and groundwater users from future groundwater substitution transfers
- Promote the long-term sustainability of the groundwater basin
- Provide additional understanding of basin response to annual variation in hydrologic conditions and potential change in air temperature and precipitation patterns because of climate change.

The GAMT provides a platform for a forward-looking analysis of groundwater basin conditions. Not only does it build on the goals of YCWA, but it also assists YCWA in fulfilling its duties to its member units and the State.

### 2.5.5. FERC Relicensing

YCWA holds the initial Federal Energy Regulatory Commission (FERC) license for the YRDP, which was issued to YCWA by the Federal Power Commission, FERC's predecessor. The initial license was effective on May 1, 1963, for a term ending April 30, 2016. YCWA intends to apply to FERC for a new license using FERC's Integrated Licensing Process. Consistent with federal regulations, YCWA intends to file with FERC a notice of intent (NOI) to apply for a new license and a Preapplication Document (PAD) after November 1, 2010, but no later than April 30, 2011. YCWA plans to file an application for a new license by April 30, 2014. YCWA is also developing a hydrologic operations model to support the relicensing process. As part of obtaining a new license for the project, license terms which could affect the operation of the YRDP could be added, or changed. A change in the terms of the license for the YRDP could impact water deliveries which could also affect the amount and timing of groundwater use in the basin. Any proposed changes in license terms would be analyzed as part of the re-licensing process.

*This page left blank intentionally.*

# CHAPTER 3.0
# GROUNDWATER MANAGEMENT PLAN ELEMENTS

The elements of this GMP include an overall goal, a set of management objectives, and a series of plan components that discuss and identify actions necessary for meeting the goal and objectives. Plan elements are summarized in the diagram in **Figure 3-1**.

## 3.1. GROUNDWATER MANAGEMENT GOAL

The goal of the YCWA GMP is to maintain a viable groundwater resource for the beneficial use of the people of Yuba County.

## 3.2. BASIN MANAGEMENT OBJECTIVES

To meet the goal stated above, YCWA has adopted seven specific basin management objectives (BMO). For each BMO identified in this section, cross-references are provided to plan actions presented and described in Sections 3.4 to 3.7.

These BMOs include the following:

- **Maintain groundwater elevations that provide for sustainable use of the groundwater basin**. YCWA intends to maintain groundwater levels by continuing and expanding the delivery of surface water to its Member Units and by managing conjunctive use activities to avoid unreasonable impacts that may occur from changes in groundwater elevations because of external transfers. YCWA has recently expanded the delivery of surface water to Wheatland Water District; this is expected to increase basin storage in the South Yuba subbasin. In addition, change in groundwater elevation which may occur as a result of groundwater extraction to meet local and out of county demands in drier years, will be monitored by YCWA.

- **Protect against potential inelastic land surface subsidence. Land subsidence can cause significant damage to essential infrastructure.** Historically, land surface subsidence within Yuba County has not been observed, and there have been no known impacts to existing infrastructure. Therefore, the potential for land surface subsidence from groundwater extraction in the north and south subbasin areas is remote given that groundwater levels are not expected to drop below historical lows. However, YCWA intends to coordinate with DWR to monitor for potential land surface subsidence.

- **Maintain and improve groundwater quality in the Yuba basin for the benefit of groundwater users**. Generally, the groundwater in the Yuba basin is of excellent quality. However, occurrences of both groundwater contamination from industrial activities and increases in TDS because of deep groundwater pumping are documented in the basin. Therefore, YCWA will coordinate with appropriate local, State, and federal agencies to pursue actions that result in the containment and remediation of these two problems.

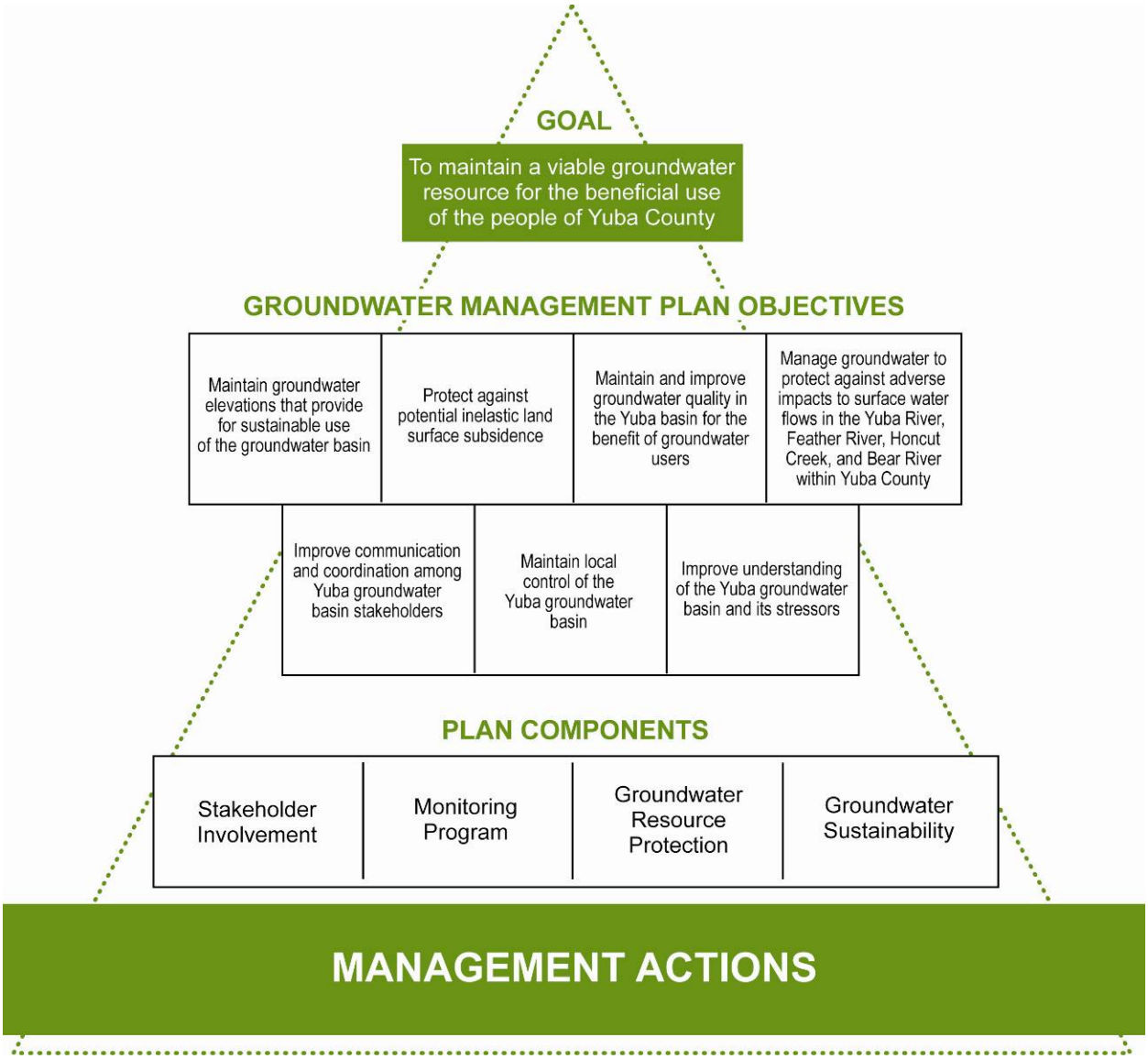



**Figure 3-1. Organization of Groundwater Management Plan Elements**

- **Manage groundwater to protect against adverse impacts to surface water flows in the Yuba River, Feather River, Honcut Creek, and Bear River within Yuba County.** Among other important uses, the Yuba River provides habitat for a variety of fish and wildlife species. YCWA will continue to coordinate with DWR in monitoring efforts that evaluate the relationship (if any) between groundwater pumping within the North and South Yuba subbasins and flows in the Yuba River, Feather River, Bear River, and Honcut Creek.

- **Improve communication and coordination among Yuba groundwater basin stakeholders**. The Yuba groundwater basin is used by many for a range of purposes. To make groundwater users and interested parties aware of various groundwater-

related activities within the basin, and to prevent potential misunderstandings about those activities, YCWA will improve communication and coordination among the various groundwater basin stakeholders.

- **Maintain local control of the Yuba groundwater basin**. YCWA will actively manage the groundwater basin and implement legislated mandates, as needed, so that local groundwater and surface water rights are maintained. Groundwater is a local resource, and should be managed by local management institutions with goals and objectives, to support the needs of local stakeholders and to protect the resource and ecosystem. YCWA will work to maintain local management of groundwater as a successful and sustained endeavor in Yuba County.

- **Improve understanding of the Yuba groundwater basin and its stressors**. Monitoring data programs and exploratory studies by YCWA, its member units, and DWR have resulted in a solid understanding of the hydrogeologic drivers of large portions of the Yuba County groundwater basin. However, in localized areas of the basin, substantial data gaps regarding groundwater usage, geology, and flow exist. YCWA will continue to improve its understanding of the groundwater basin through collection of additional monitoring and usage information and analysis of the groundwater basin.

## 3.3. GROUNDWATER MANAGEMENT PLAN COMPONENTS

This GMP includes a variety of components that are required by CWC Section 10753.7, recommended in DWR Bulletin 118 California's Groundwater (DWR 2003), and identified as optional programs under CWC Section 10753.8. It also includes groundwater management elements already in place. These components are grouped into four general categories:

1. Stakeholder involvement.
2. Monitoring program.
3. Groundwater resource protection.
4. Groundwater sustainability.

The components or programs are presented in this section and summarized in **Table 3-1** for reference. The table correlates activities that are related to one or more BMO. Each component includes a discussion and proposed actions. Note that many actions will require funding, and their implementation is thus dependent on obtaining such funding.

This GMP includes a variety of components that are required by CWC Section 10753.7, recommended by DWR Bulletin 118 (2003), and optional under CWC Section 10753.8. These components can be grouped into five general categories:

1. Stakeholder involvement.
2. Monitoring program.
3. Groundwater resource protection.
4. Groundwater replenishment.

5. Planning integration.

Each category and its components are presented in this section. Each component is discussed, actions are proposed, and objectives identified toward which the component is directed.

## 3.4. COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT PLAN

YCWA actively promotes the involvement of stakeholders when fulfilling its responsibilities, as described in the Act to "…develop and promote the beneficial use and regulation of the water resources of Yuba County…"

Many and various water purveyors, agencies, and organizations actively participate in basin monitoring and measurement throughout Yuba County. YCWA has used the GMP development process to consolidate information and, to the extent appropriate, improve management efficiency by formalizing the existing process of basin management. This GMP was developed with the involvement of YCWA's eight member units, municipal purveyors within the County, other agricultural purveyors, members of the public and DWR. The following subsections describe actions that will be taken to continue involving groundwater stakeholders.

### 3.4.1. Involving the Public

Groundwater in California is used by the public, and YCWA is committed to involving the public in the development and implementation of its GMP (**Figure 3-2**). Although the CWC does not explicitly address public noticing for GMP updates, YCWA chose to follow the noticing requirements prescribed in the CWC for original GMP documents to maximize stakeholder involvement in the GMP update process. In preparation of this GMP update, YCWA filed notices in the Appeal Democrat (**Appendix B**). First, in accordance with CWC Section 10753.2, a NOI to adopt a resolution to prepare an update to the 2005 GMP was published in the Appeal Democrat on October 12 and 19, 2010. The YCWA Board of Directors adopted the resolution of intent to prepare an updated GMP on October 26, 2010, at a publicly held board meeting. The adopted resolution was published in the Appeal Democrat on November 2, 2010.

**Figure 3-2. Groundwater Management Plan Update Public Outreach Process**

YCWA held an initial public meeting on August 19, 2010 to provide information about the GMP update process and to solicit input from stakeholders about the overall GMP goal and BMOs. The stakeholder comment period for the GMP goals and BMOs closed on September 10, 2010. YCWA published a stakeholder review draft of the GMP on October 12, 2010; the comment period on this initial draft closed on October 29, 2010. The public review draft GMP was released for review and comment on November 12, 2010; the review period closed on November 26, 2010. A public meeting, which was advertised in the Appeal Democrat on November 14, 2010, was held on November 18, 2010 to give members of the public an overview of the GMP progress to date and to solicit comments on the public review draft GMP. An ordinance to adopt the final GMP was introduced at a YCWA board workshop on December 14, 2010. The ordinance to adopt the final GMP was passed and adopted on December 28, 2010. The adopted ordinance was posted on the YCWA web site and published in the Appeal Democrat on December 31, 2010.

**Table 3-1. Summary of Basin Management Objectives, Groundwater Management Plan Components, and Management Actions**

| Basin Management Objective (BMO) | BMO No. 1 Maintain Groundwater Levels | BMO No. Protect Against Subsidence | BMO No. 3 Maintain Groundwater Quality | BMO No. 4 Surface Water/ Groundwater Interaction | BMO No. 5 Improve Collaboration | BMO No. 6 Maintain Local Control | BMO No. 7 Improve Basin Understanding |
|---|---|---|---|---|---|---|---|
| **Component No. 1 – Stakeholder Involvement** | | | | | | | |
| Involving the Public | ● | ● | ● | ● | ● | ● | |
| Involving Other Agencies Within and Adjacent to YCWA Area | | | | | ● | ● | |
| Forming an Advisory Committee | ● | ● | ● | ● | ● | ● | |
| Developing Relationships with State and Federal Agencies | ● | ● | ● | ● | ● | ● | ● |
| Pursuing Partnership Opportunities | | | | | ● | ● | ● |
| **Component No. 2 – Monitoring Program** | | | | | | | |
| Groundwater Storage and Elevation Monitoring | ● | | | ● | ● | ● | ● |
| Groundwater Quality Monitoring | | | ● | ● | ● | ● | ● |
| Inelastic Subsidence Monitoring | | ● | | | ● | ● | ● |
| Groundwater and Surface Water Interaction Monitoring | ● | | ● | ● | ● | ● | ● |
| Data Management | ● | ● | ● | ● | ● | ● | ● |

**Table 3-1. Summary of Basin Management Objectives, Groundwater Management Plan Components, and Management Actions (continued)**

| Basin Management Objective (BMO) | BMO No. 1 Maintain Groundwater Levels | BMO No. 2 Protect Against Subsidence | BMO No. 3 Maintain Groundwater Quality | BMO No. 4 Surface Water/ Groundwater Interaction | BMO No. 5 Improve Collaboration | BMO No. 6 Maintain Local Control | BMO No. 7 Improve Basin Understanding |
|---|---|---|---|---|---|---|---|
| **Component No. 3 – Groundwater Resource Protection** | | | | | | | |
| Well Construction, Abandonment, and Destruction Policies | ● | ● | ● | ● | ● | ● | ● |
| Wellhead Protection Measures | | | ● | | ● | ● | ● |
| Protection of Recharge Areas | ● | ● | ● | ● | ● | ● | ● |
| Control of Migration and Remediation of Contaminated Groundwater | | | ● | ● | ● | ● | ● |
| Fuel Storage Tanks | | | ● | | ● | ● | ● |
| Control of Saline Water Intrusion | | | ● | ● | ● | ● | ● |
| **Component No. 4 – Groundwater Sustainability** | | | | | | | |
| Understand Groundwater Stressors | ● | | ● | ● | ● | ● | ● |
| Land Use Changes | ● | | ● | ● | ● | ● | ● |

### *Actions*

YCWA will take the following actions to promote public involvement:

- Publish an Annual Groundwater Monitoring Report summarizing groundwater conditions in the Yuba groundwater basin relative to historical trends, and describing ongoing groundwater management activities. Also, publish a groundwater fact sheet (i.e., a one-page summary of findings from the annual groundwater monitoring report) annually. Both reports will be posted on the YCWA Web page and will be available for public distribution.

- Hold annual public/stakeholder meetings to provide updates on groundwater management activities and groundwater conditions in the basin; these meetings can be scheduled to coincide with the release of the Annual Groundwater Monitoring Report.

- Develop an enhanced Internet presence for YCWA groundwater activities; potential items to include on the Web site are the Proposition 13 Hydrogeologic Understanding Report (MWH, 2008), annual groundwater monitoring reports and fact sheets, notices for public meetings, and groundwater monitoring data.

- Develop a conjunctive use brochure for the general public highlighting the benefits of conjunctive use.

## 3.4.2. Involving Other Agencies Within and Adjacent to YCWA Area

**Figure 2-1** shows many of the agencies within Yuba County that YCWA collaborates and coordinates with regarding groundwater management and planning activities. Each of the agencies included in this figure are involved in groundwater pumping, groundwater monitoring, and groundwater data management. Therefore, information sharing and collaboration on groundwater activities is mutually beneficial to protect and preserve the resource. **Table 3-2** summarizes these agencies.

**Table 3-2. Agencies Within or Adjacent to Yuba County Water Agency with Groundwater Interests**

| Agency Within or Adjacent to Yuba County Water Agency | Interest in Groundwater | Represented on Water Advisory Committee |
|---|---|---|
| **Yuba County Water Agency Member Units** | | |
| Hallwood Irrigation District | Agricultural irrigation | ✓ |
| Cordua Irrigation District | Agricultural irrigation | ✓ |
| Ramirez Irrigation District | Agricultural irrigation | ✓ |
| Browns Valley Irrigation District | Agricultural irrigation | ✓ |

## Table 3-2. Agencies Within or Adjacent to Yuba County Water Agency with Groundwater Interests (Continued)

| Agency Within or Adjacent to Yuba County Water Agency | Interest in Groundwater | Represented on Water Advisory Committee |
|---|---|---|
| Brophy Water District | Agricultural irrigation | ✓ |
| Wheatland Water District | Agricultural irrigation | ✓ |
| South Yuba Water District | Agricultural irrigation | ✓ |
| Dry Creek Mutual Water Company | Agricultural irrigation | ✓ |
| **Other Irrigators** | | |
| Reclamation District No. 10 | Agricultural irrigation | ✓ |
| Reclamation District No. 784 | Agricultural irrigation | ✓ |
| Camp Far West Irrigation District | Agricultural irrigation | ✓ |
| **Public Water Suppliers** | | |
| California Water Service Company (City of Marysville) | Municipal supply | ✓ |
| Linda County Water District | Municipal supply | ✓ |
| Olivehurst Public Utility District | Municipal supply | ✓ |
| Plumas Mutual Water Company | Agricultural irrigation | |
| City of Wheatland | Municipal Supply | |
| **Other Agencies Within Basin** | | |
| Beale Air Force Base | Municipal supply ;Groundwater remediation | ✓ |
| Yuba County | Well permitting, approval of development plans that may rely on groundwater for supply, general plan | ✓ |
| **Agencies Adjacent to Yuba County** | | |
| Butte County | Groundwater management planning | ✓ |
| Sutter County | Groundwater management planning | ✓ |
| Placer County | Groundwater management planning | |
| Yuba City | Municipal supply | |

### *Actions*

YCWA will take the following actions to coordinate with agencies in and around the Yuba groundwater basin:

- YCWA will invite each of the agencies included in **Table 3-2** to an annual groundwater briefing to present and discuss the Annual Groundwater Monitoring Report.
- YCWA will encourage sharing of groundwater level, quality, and pumping data among these agencies.
- YCWA will attend meetings for groundwater management planning activities in Butte, Sutter, and Placer counties and share relevant information with Yuba County interests.

## 3.4.3. Forming Advisory Committee for Groundwater Management Plan Development

YCWA used a water advisory committee (WAC) in its GMP development (see **Appendix C**). On August 19, 2010, YCWA held a meeting with the WAC to discuss the GMP update scheduled for 2010. An invitation to the meeting was mailed to all of the agencies listed in **Table 3-2**.

### *Actions*

YCWA will take the following actions to continue collaboration with the WAC:

- YCWA will meet with the WAC annually to present and discuss findings from the Annual Groundwater Monitoring Report.

## 3.4.4. Developing Relationships with State and Federal Agencies

Working relationships between YCWA and local, State, and federal regulatory agencies are critical to developing and implementing the various groundwater management strategies and actions detailed in this updated GMP. Water transfers described in Section 1.0 of the GMP are examples of YCWA's ability to work cooperatively with regulatory agencies.

Building on existing relationships with DWR, YCWA will refine and formalize the existing monitoring and measurement program in cooperation with the DWR North Central Region.

### *Actions*

YCWA will take the following actions for the involvement of State and federal agencies:

- Continue to develop working relationships with local, State, and federal regulatory agencies.

## 3.4.5. Pursuing Partnership Opportunities

YCWA has successfully partnered with DWR in developing and expanding the groundwater monitoring program and in conducting local and regional scale investigations to improve

understanding of the groundwater system in Yuba County. Partnerships with local, State and federal agencies were successful in developing the Yuba Accord, under which YCWA and its member units are participating in groundwater substitution transfers to provide water for the State and economic stimulus for Yuba County. YCWA is also leading the IRWMP and implementation activities, which involve ten partners working together to manage the water resources of Yuba County in a coordinated plan. The IRWMP is an important mechanism for obtaining State grant money for water management programs and projects through the sale of water bonds.

### *Actions*

YCWA will take the following actions to pursue partnership opportunities:

- YCWA will continue to track and pursue grant opportunities to fund groundwater management activities and local water infrastructure projects.

## 3.5. COMPONENT CATEGORY 2: MONITORING PROGRAM

YCWA participates in monitoring and measuring water resources as part of the power granted in the Act to "…carry on technical and other necessary investigations, make measurements, collect data, make analyses, studies, and inspections pertaining to water supply…"

This section of the GMP describes monitoring programs for all four categories of monitoring required by the CWC:

- Groundwater storage and elevation monitoring
- Groundwater quality monitoring
- Inelastic subsidence
- Groundwater and surface water interaction

Each of these categories is discussed below. The intent of this section of the GMP is to review monitoring efforts to date and determine if any enhancements are needed.

### 3.5.1. Groundwater Storage and Elevation Monitoring

The Yuba groundwater basin is monitored to evaluate both the long-term health of the basin and localized short-term impacts of pumping on groundwater elevations.

Long-term basin health is monitored as changes in groundwater levels and storage over time. Managing the long-term health of the basin meets the BMO of achieving groundwater elevations that provide for sustainable use of the groundwater basin. Estimates of changes in groundwater storage are developed using monitoring data that report the changes in groundwater surface elevation throughout the basin.[5]

[5] By using water level measurements and estimates of specific yield, the change in groundwater storage may be estimated.

Such monitoring data also serve another purpose, to indicate potential localized, short-term impacts of pumping. YCWA strives to accomplish the following:

- Avoid potential unreasonable impacts that may occur from changes in groundwater surface elevations because of external transfers.
- Monitor any lowering of groundwater surface elevations that may occur as a result of groundwater extraction to meet local demands in drier years.

YCWA has compiled historical water level measurements from 1947 to the present. Sources of historical water level data for the North and South Yuba subbasins include the following:

- DWR
- YCWA
- Member units
- Beale AFB
- Municipalities

### *Groundwater Storage and Elevation Monitoring Efforts in Yuba County*

Groundwater elevation monitoring in Yuba County wells has evolved over time. DWR maintains a database that contains records dating back to 1947. Originally, water level measurements were collected by DWR. When DWR budget cuts threatened to eliminate its monitoring program, the Yuba County Agriculture Department agreed to continue measuring water levels because of the value of the data. When Yuba County Agriculture Department budget cuts threatened to eliminate its monitoring activities, YCWA agreed to continue collecting water level data.

Currently, groundwater monitoring is done cooperatively between DWR and YCWA. In 1995, the DWR-YCWA monitoring network was modified to increase efficiency. To reduce ongoing monitoring costs, DWR developed a plan that discontinued monitoring at a number of wells in exchange for installing fewer, more strategically located wells. YCWA paid approximately $100,000 to DWR to install the new wells.

YCWA successfully applied for and received an AB 303 Groundwater Assistance Grant totaling $250,000 in 2005, and a Proposition 13 Groundwater Construction Grant totaling $1,500,000 in 2001. Among other activities, YCWA used funds from the grants to install two triple-completion and six single-completion groundwater monitoring wells in the Yuba County groundwater basin in 2006. Also, YCWA successfully applied for and received an additional AB 303 grant in 2008 totaling $250,000 for the installation of five single-completion groundwater monitoring wells. The five additional wells are scheduled to be installed in summer 2011.

There are approximately 87 groundwater elevation monitoring locations within the County boundary in the current DWR/YCWA monitoring program. The locations of those wells are

shown in **Figure 3-3**. In addition to showing the location of wells monitored for groundwater surface elevations, **Figure 3-3** also indicates which agency monitors each well and how often each well is monitored (as of 2010). A standard operating procedure (SOP) for manual water level measurements was presented in Appendix A of the 2008 YCWA Measurement and Monitoring Report.

Responsibilities of both DWR and YCWA in the monitoring program are explained below.

**DWR**. As of 2010, 48 of the wells in the monitoring network are monitored by DWR. Of these wells, 31 are monitored monthly and 17 are continuously monitored using pressure transducers equipped with data loggers. The water level in each well is measured manually by DWR staff, using a water level indicator. As the term implies, "monthly" measurements are taken 12 times a year.

**YCWA**. YCWA monitors 39 of the wells in the monitoring network. Of these wells, 12 are measured semiannually, 15 are measured monthly, and 12 (six single completion and 2 triple completion wells) are continuously monitored using pressure transducers equipped with data loggers. Semiannual measurements are generally taken within 3-week windows in the spring (e.g., March) and fall (e.g., October). The water level in each well is measured manually by YCWA staff, using a water level indicator. Measured water level in the semiannual and monthly wells is provided to DWR staff for inclusion in the DWR Water Data Library (http://www.water.ca.gov/waterdatalibrary/). As of 2010, YCWA is working with DWR staff to also load the continuous data collected by the agency into the Water Data Library.

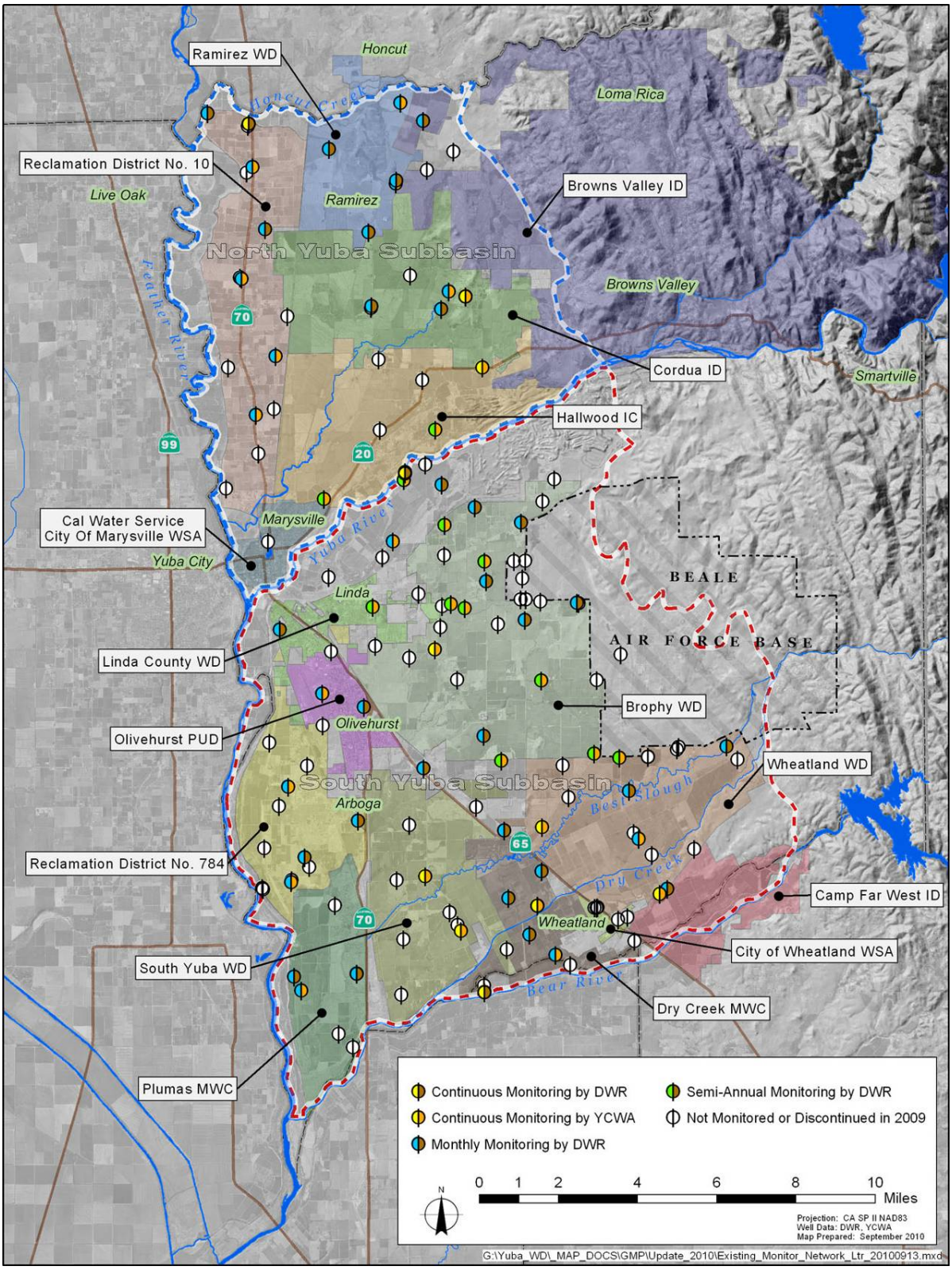



**Figure 3-3. Yuba Groundwater Basin Wells Monitored for Elevation by YCWA and DWR**

In addition to the groundwater surface elevation monitoring done by YCWA and DWR, YCWA member units monitor changes in groundwater elevation during groundwater substitution transfers. During 1991, the State experienced a major drought emergency, and the Governor was proposing to suspend agricultural water right diversions to meet urban demands. YCWA was instrumental in working with the State to develop a groundwater substitution drought water bank program under which groundwater was pumped for crop irrigation, and surface water normally used for irrigation was transferred to urban users for a fee. Additional groundwater substitution transfers occurred in 1994, 2001, 2002, 2008, 2009, and 2010 (see **Table 1-1** in Section 1 of this document for details of these transfers).

Since 2001, monitoring of groundwater surface elevations has increased during transfer years. This increased monitoring effort focused on wells involved in the transfers and was done to (1) assess the effects of the transfers on the groundwater resource, providing the ability to respond to unexpected low water levels, should they occur, and (2) provide reasonable assurance that the water pumped and accounted for, as part of the transfer, was in lieu of surface water deliveries.

The 2007 Lower Yuba River Accord Conjunctive Use Agreement formalized the Groundwater Monitoring and Reporting Program for groundwater substitution transfers. Member units participating in groundwater substitution transfers are required to measure the water level in selected transfer wells each year before pumping, and monthly, after pumping, until water levels recover to pre-pumping levels or until the spring high water level is reached.

**Municipalities**. The following municipalities measure water levels in their wells on at least a monthly basis:

- California Water Service Company (City of Marysville)
- OPUD
- Linda County Water District
- City of Wheatland

The California Water Service Company (City of Marysville) and City of Wheatland have developed a supervisory control and data acquisition (SCADA) system. Use of SCADA in monitoring implies that monitoring occurs in real time.

**Table 3-3** presents a tabular summary of the number and type of wells currently being monitored for groundwater surface elevation in the Yuba County groundwater subbasins and frequency of monitoring.

**Table 3-3. Summary of DWR/YCWA Water Elevation Monitoring Wells**

| | Number of Wells Monitored | | | |
|---|---|---|---|---|
| | **Semiannually** | **Monthly** | **Continuous** | **Total** |
| DWR | 0 | 31 | 17 | 48 |
| YCWA[1] | 12 | 15 | 12 | 39 |
| Transfer | | | | Up to 240 |
| Municipal[2] | | | ~35 | ~35 |

Notes:
Numbers include monitoring at individual completions of multiple-completion piezometers.
[1] Several wells monitored semiannually and monthly by YCWA are measured on behalf of DWR.
[2] California Water Service Company (City of Marysville) and City of Wheatland have SCADA systems; therefore, monitoring data is real-time.
Key:
DWR = California Department of Water Resources
YCWA = Yuba County Water Agency

### *Refinement of Existing Groundwater Storage and Elevation Monitoring*

Composition of the monitoring network has been in continual flux (i.e., wells added and dropped over time). For these reasons, YCWA is coordinating with its member units, DWR, and other basin groundwater extractors to determine if any refinements are needed to provide adequate basin coverage.

YCWA is also tracking the requirements of Senate Bill (SB) X7 6. In 2009, the Legislature passed SB X7 6, which establishes, for the first time in California, collaboration between local monitoring parties and DWR to collect groundwater elevations statewide, and that this information be made available to the public.

SB X7 6 provides for the following:

- Local parties may assume responsibility for monitoring and reporting groundwater elevations.
- DWR will work cooperatively with local Monitoring Entities to achieve monitoring programs that demonstrate seasonal and long-term trends in groundwater elevations.
- DWR will accept and review prospective Monitoring Entity submittals, then determine the designated monitoring entity, notify the monitoring entity and make that information available to the public.
- DWR will monitor groundwater elevation in basins where no local party has agreed to perform monitoring functions.

If local parties (e.g., counties) do not volunteer to perform groundwater monitoring functions, and DWR assumes those functions, the parties become ineligible for water grants or loans from the State.

YCWA is currently coordinating with its member units and other groundwater stakeholders to identify and agree on the monitoring entity for Yuba County. YCWA is also aware of two significant deadlines under the new program:

- On or before January 1, 2011. Parties seeking to assume groundwater elevation monitoring functions must notify DWR (CWC Section 10928)

- On or before January 1, 2012. Monitoring Entities will begin reporting seasonal groundwater elevation measurements (CWC Section 10932)

DWR is currently developing guidance for the program, which is being referenced as the "California Statewide Groundwater Elevation Monitoring" program. More information on the program is available online at http://www.water.ca.gov/groundwater/casgem/.

### *Actions*

Enhancements to existing groundwater storage and elevation monitoring efforts will be considered on a cost-effective basis by YCWA when and if the following occur:

- Existing monitoring efforts continually report confusing or inaccurate findings.

- Potential impacts to the groundwater basin are reported in areas where little or no existing monitoring occurs.

- State regulations require more stringent monitoring, particularly to maintain local control of the groundwater resource.

- Further coordination becomes necessary to support monitoring activities performed at Beale AFB for both the remediation program and water service.

Types of actions to be pursued if enhancements are required include the following:

- Coordinate with member units, DWR, and other basin groundwater extractors (e.g., Beale AFB, municipalities) to identify an appropriate group of wells for monitoring to better understand groundwater level fluctuations. Preference will be given to wells currently in an agency's monitoring network that (1) have long records of historic water level data and are useful in assessing trends within the subbasins, (2) have uniform protocols used for measuring and recording water level data, (3) are nonproducing wells or have relatively low extraction volumes so that water level readings represent relatively static levels, and (4) have well construction information. Geographic distribution, basin hydrogeology, and areas of extraction will also be considered.

- Coordinate with member units, DWR, and other basin groundwater extractors so that selected wells are maintained as part of a long-term monitoring network.

- Coordinate with member units, DWR, and other basin groundwater extractors so that needed water level data are collected, verify that uniform data collection protocols are

used among the agencies, and confirm that data sharing and archiving procedures are implemented.

- Provide training for member units and other basin groundwater extractors on implementation of data collection protocols, as required or if requested.
- Consider ways to fill gaps in the monitoring well network by identifying additional existing suitable wells or identifying opportunities for constructing new monitoring wells.
- Seek outside funding and identify potential candidate wells for well characterization survey(s) to determine extraction intervals and total well depth for improved understanding of vertical gradients.
- Seek outside funding for installation of a multilevel piezometer near the Yuba Goldfields area to improve understanding of recharge in that portion of the basin.
- Semiannually obtain groundwater elevation measurements from Beale AFB.
- Identify opportunities and potential outside funding sources for monitoring groundwater levels near current or proposed future municipal pumping locations
- Track requirements for the upcoming California Statewide Groundwater Elevation Monitoring (CASGEM) program and provide the required information to DWR.

### 3.5.2. Groundwater Quality

The purpose of the groundwater quality component of the overall monitoring program is to develop and implement actions that will help YCWA meet BMO No. 3 – maintain and improve groundwater quality in the Yuba basin for the benefit of groundwater users. This process requires (1) collection and analysis of adequate data, and (2) if a problem is detected, coordination with appropriate local, State, and federal agencies to pursue actions resulting in remediation.

Because the majority of the wells in the groundwater basin are used for agricultural supplies, limited water quality data exist. YCWA is compiling available historical water quality data extending from the 1940s to the present. Sources of water quality data include the following:

- Member units
- DWR
- Municipalities
- SWRCB
- Beale AFB

### *Groundwater Quality Monitoring Efforts in Yuba County*

**Member Units**. Member Units participating in groundwater substitution transfers under the Yuba Accord are required to collect EC measurements from transfer wells at the onset of pumping, halfway through pumping, and at the end of the pumping season from accessible transfer wells. EC data are summarized in annual Groundwater Monitoring Reports.

**DWR**. DWR Central District maintains data for 62 water quality wells in the two subbasins (35 in the north, 27 in the south). These data were collected starting in the 1940s. Currently, DWR collects data for 13 water quality wells in the two subbasins on a regular basis, depending on funding. In a typical year, water quality samples are collected from approximately half of the wells in the water quality monitoring network. Samples are collected after the onset of pumping in May, June, and July. Constituents analyzed include minerals, nutrients, and nitrates.

**Municipalities**. As required under Title 22, municipalities collect water quality data for required constituents and report that data to the California Department of Public Health (DPH). This level of monitoring is sufficient under existing regulatory guidelines to ensure that the public is provided with a safe, reliable drinking water supply. Municipalities include the following:

- California Water Service Company (City of Marysville)
- OPUD
- Linda County Water District
- City of Wheatland

**SWRCB**. The California Legislature and Governor, as well as private citizens, have become increasingly concerned about the recent public supply well closures because of the detection of chemicals, such as methyl tert-butyl ether (MTBE) from gasoline and various solvents with industrial sources. As a result of the increased awareness about groundwater quality, the Supplemental Report of the 1999 Budget Act required SWRCB to develop a comprehensive ambient groundwater monitoring plan.

The Groundwater Ambient Monitoring and Assessment (GAMA) Program is California's comprehensive groundwater quality monitoring program. Groundwater quality sampling and reporting for select Yuba County wells are included in the GAMA program. The GAMA Program was created by SWRCB in 2000. It was later expanded by AB 599 – the Groundwater Quality Monitoring Act of 2001. The main goals of GAMA are as follows:

- Improve statewide groundwater monitoring
- Increase the availability of groundwater quality information to the public

Major groundwater supply basins are a specific focus of the GAMA Program. The legislatively mandated program (AB 599) is funded by Proposition 50 and special fund fees.

There are four active GAMA projects:

- Priority Basin Project
- Domestic Well Project
- Special Studies Project
- GeoTracker GAMA

Results of testing in the Yuba County groundwater basin and surrounding counties under the Priority Basin Project are included in the Middle Sacramento Valley Study Unit Report completed in 2006, and available online at http://www.swrcb.ca.gov/water_issues/programs/gama/docs/dsr_midsac.pdf.

In 2002, the GAMA Domestic Well Project sampled 128 domestic wells in Yuba County and analyzed for chemicals that are most commonly a concern in domestic well water. The information report, last revised in July 2010, is available online at http://www.swrcb.ca.gov/water_issues/programs/gama/docs/yubareportsummary.pdf

Special studies currently in progess under the GAMA program include the following:

- Groundwater recharge
- Continuing studies on changes in chemistry of groundwater recharged by surface waters
- Development of field-deployable apparatus for extraction and collection of dissolved gasses from groundwater samples

YCWA will track the results of these special studies in an effort to identify applications for the Yuba County groundwater basin. Additional information on the GAMA Special Studies program is available online at http://www.swrcb.ca.gov/water_issues/programs/gama/special_studies.shtml.

**Beale AFB**. Water quality data are collected at Beale AFB for both the groundwater remediation program and the service of municipal water. YCWA will be coordinating with Beale AFB to review the monitoring activities.

**Ostrom Road Landfill.** The Ostrom Road Landfill, located northeast of Wheatland, currently provides solid waste disposal services to regional municipal and commercial customers. The landfill operates to Subtitle D regulations requiring liner systems, leachate collection and recovery systems, water quality monitoring systems, and other environmental protection measures. Monitoring wells around the Ostrom Road Landfill have been monitored quarterly since 1990, and results are reported to the Central Valley Regional Water Quality Control Board on a semi-annual basis. The Ostrom Road Landfill is subject to regulatory oversight for the listed permits from the following:

- Central Valley Water Quality Control Board – Waste discharge permit

- Feather River Air Quality Management District – Title V Federal Clean Air Act permit
- California Department of Resources Recycling and Recovery – Solid waste facility permit
- County of Yuba – Conditional use permit

There are no known groundwater quality issues at present. YCWA will coordinate with the Ostrom Road Landfill to review monitoring protocol and data.

**Yuba County**. The Yuba County Department of Environmental Health (DEH) is another repository for groundwater quality information in Yuba County. YCWA will exchange information with DEH under the GMP. The DEH private well program permits and reviews all private wells for proper construction and siting. During well construction, DEH inspections are made to verify proper seals and site information. DEH requires that private wells be drilled and tested for water quality purposes before the release of building permits for habitable structures. The public water program is to help provide an adequate and safe drinking water supply for the residents of Yuba County who are supplied from a centralized water system. The program permits and reviews all public water systems for proper construction, maintenance, and water quality testing. Inspections are made to verify proper operation and maintenance (O&M). **Figure 3-4** shows the locations of wells monitored for water quality by DWR and SWRCB.

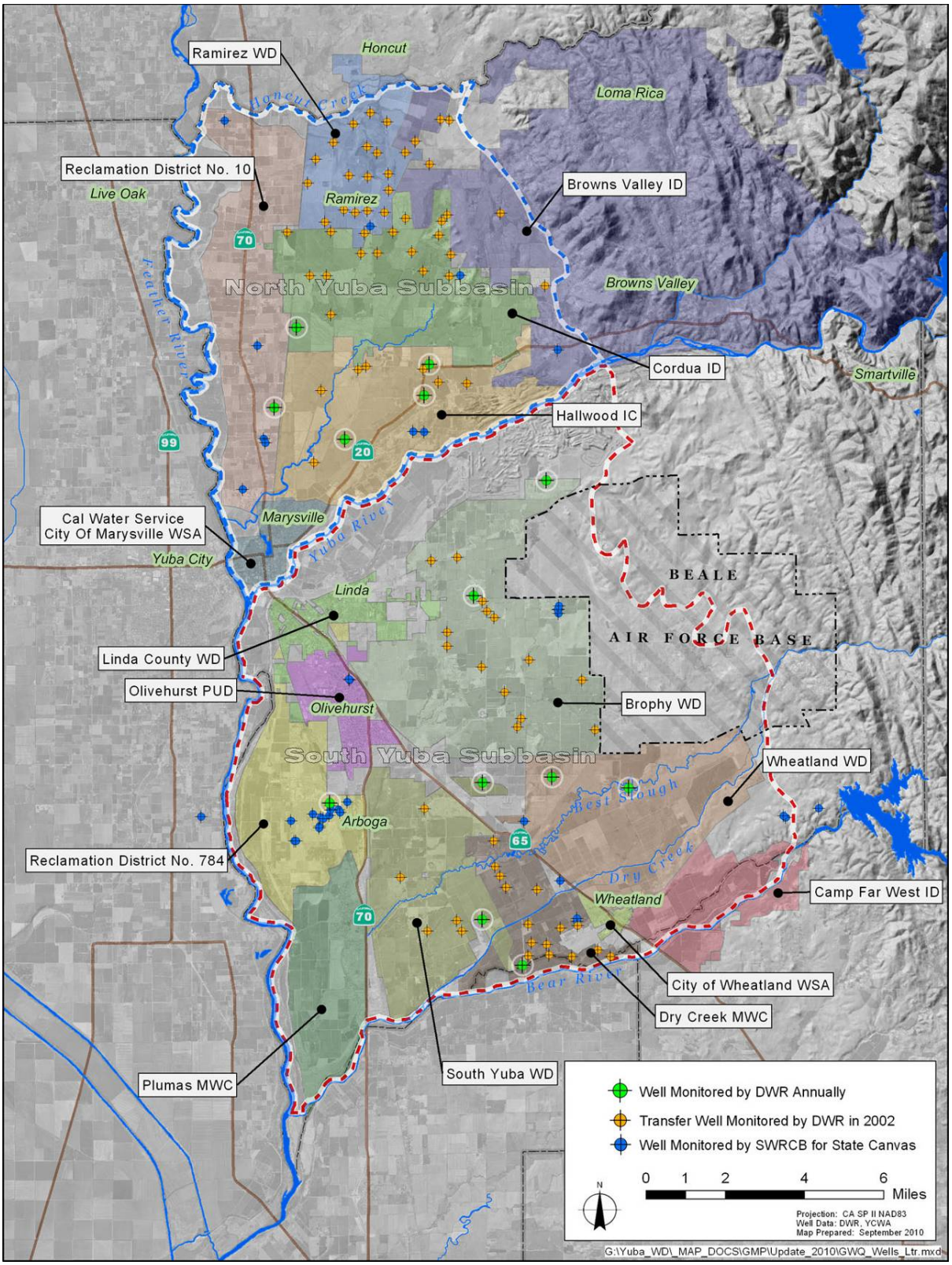



**Figure 3-4. Yuba Groundwater Basin Wells Monitored for Water Quality**

### *Refinement of Existing Groundwater Quality Monitoring*

Compositions of the monitoring networks have been in continual flux, with monitoring wells added and dropped over time. For this reason, YCWA is coordinating with its member units, DWR, and other basin groundwater extractors to determine if any refinements are needed to provide adequate basin coverage.

### *Actions*

Enhancements to existing groundwater quality monitoring efforts will be considered on a cost-effective basis by YCWA when and if the following occur:

- Existing monitoring efforts continually report confusing or inaccurate findings, or potential impacts to the groundwater basin are reported in areas where little or no existing monitoring occurs.

- State regulations require more stringent monitoring, particularly to maintain local control of the groundwater resource.

Types of actions to be pursued if enhancements are required include the following:

- Coordinate with member units, DWR, and other basin groundwater extractors (e.g., Beale AFB, municipalities, etc.) to identify an appropriate group of wells for monitoring both during transfer and non-transfer years. Preference will be given to wells currently in an agency's monitoring network that (1) have long records of historic water quality data and are useful in assessing trends within the subbasins, (2) have uniform protocols used for measuring and recording water quality data, (3) are either producing or nonproducing wells, appropriately selected for the constituent being monitored, and (4) have well construction information. Geographic distribution, basin hydrogeology, and areas of extraction will also be considered.

- Coordinate with member units, DWR, and other basin groundwater extractors so that needed water quality data are collected, verify that uniform data collection protocols are used among the agencies, and confirm that data sharing and archiving procedures are implemented.

- Coordinate with member units, DWR, other basin groundwater extractors, and other local, State, and federal agencies to identify where wells may be present in areas with sparse groundwater quality data. Identify opportunities for collecting and analyzing water quality samples from those wells. If wells are sampled through other programs, coordinate with the appropriate agency to share data.

## 3.5.3. Inelastic Subsidence

Subsidence of the land surface resulting from compaction of underlying formations affected by head (water level) decline is a well-documented concern throughout much of the Central Valley. During a typical pumping season, changes in land surface elevation can be observed as a result of both elastic and inelastic subsidence in the underlying groundwater basin. Elastic subsidence results from the reduction of pore fluid pressures in the aquifer, and

typically rebounds when pumping ceases or when groundwater is otherwise recharged, resulting in increased pore fluid pressure. Inelastic subsidence occurs when pore fluid pressures decline to the point that aquitard (a clay bed of an aquifer system) sediments collapse, resulting in permanent compaction and reduced ability to store water in that portion of an aquifer.

The purpose of the inelastic subsidence component of the overall monitoring program is to develop and implement actions that will help YCWA meet BMO 3 – protect against potential inelastic land surface subsidence. This process requires (1) coordination with DWR to monitor for potential land surface subsidence, (2) collection and analysis of adequate data, and (3) investigation of appropriate actions to avoid adverse impacts (if inelastic subsidence is documented in conjunction with declining groundwater elevations).

### *Inelastic Subsidence Monitoring Efforts in Yuba County*

YCWA reviewed the existing subsidence monitoring network maintained by the National Oceanic and Atmospheric Administration's National Geodetic Survey (NGS). Review of NGS monuments identified 16 monuments in or near Yuba County. Three additional geodetic control marks were installed in Yuba County in 2007 using Proposition 13 grant funding, bringing the total number of monuments in the county to nineteen, shown in **Figure 3-5**. The three additional monuments were installed to provide increased resolution in the eastern portions of the groundwater basin. The baseline survey for the new monuments was conducted in 2008, in coordination with the Sacramento Valley Height-Modernization Project. The NGS published the Sacramento Valley portion of the Sacramento Valley Height-Modernization Project in 2010.

### *Actions*

The following actions will be implemented by YCWA to monitor for land subsidence in the Yuba groundwater basin:

- Perform repeat level surveys on subsidence monitoring benchmarks at least every 5 years or on an agreed schedule with DWR.

- Identify locations especially vulnerable to damage from subsidence (e.g., levees, canals, pipelines) and ensure that monitoring network is adequate in those areas.

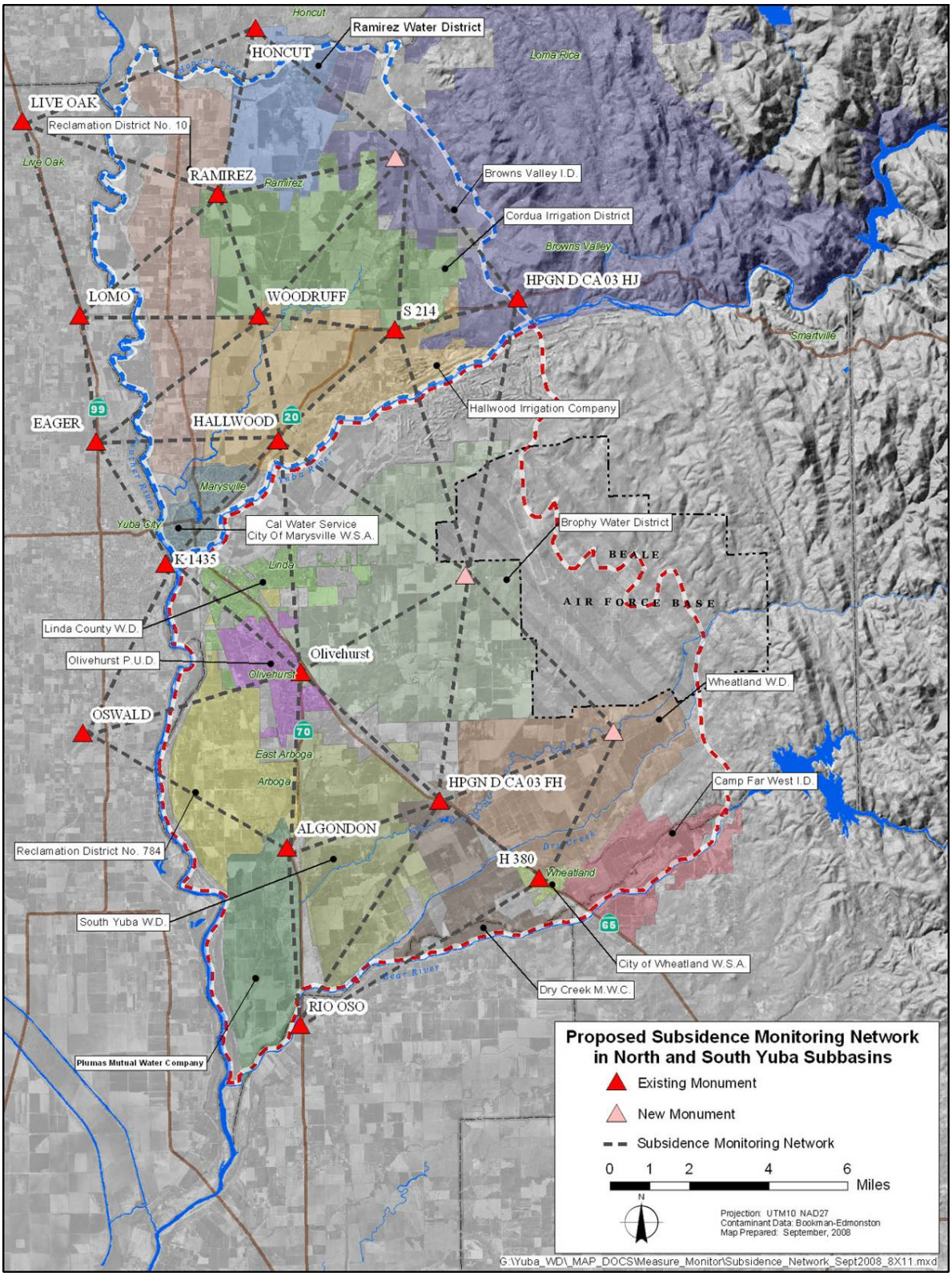



**Figure 3-5. Subsidence Monitoring Network in North and South Yuba Subbasins**

### 3.5.4. Groundwater and Surface Water Interaction

The purpose of the groundwater and surface water interaction component of the overall monitoring program is to develop and implement actions that will help YCWA meet BMO 4 – protect against adverse impacts to surface water flows. YCWA is committed to meeting flow requirements in the Yuba River for protection of fish and wildlife habitat. In addition, YCWA plans to coordinate with DWR in monitoring efforts that evaluate the relationship (if any) between groundwater pumping and adjacent river or stream flows.

#### *Groundwater and Surface Water Interaction Monitoring Efforts in Yuba County*

The interaction between groundwater and surface water has not been extensively evaluated within the two subbasins. Both DWR and YCWA have initiated evaluation efforts.

In recent years, DWR has studied groundwater and surface water interaction in the groundwater basin. DWR conducted aquifer pump tests at eight locations and is using multilevel piezometers, as shown in **Figure 3-6**. In March 2003, DWR installed a multilevel piezometer in close proximity to both its Bear River stream gage (near Pleasant Grove Road) and a production well subscribed in the YCWA transfer program. Data were recorded at both the piezometer and stream gage on synchronized, 15-minute intervals, and stable isotope samples were taken and analyzed. DWR has collected data for more than 14 months and is preparing a report based on those data. In summer 2004, DWR installed another multilevel piezometer in close proximity to YCWA's Yuba River stream gage (near Marysville). In 2005, DWR installed a multilevel piecometer near the Feather River, near the Boyd's Landing river stage gage. A fourth multilevel piezometer was installed near Honcut Creek in 2006, but no stream gage currently exists in its immediate proximity. The data collected and analyzed at these stations in non-transfer years will establish a baseline that will allow DWR and YCWA to observe changes in water levels and composition resulting from transfer program extractions. DWR is exploring the installation of additional groundwater/surface water interaction stations.

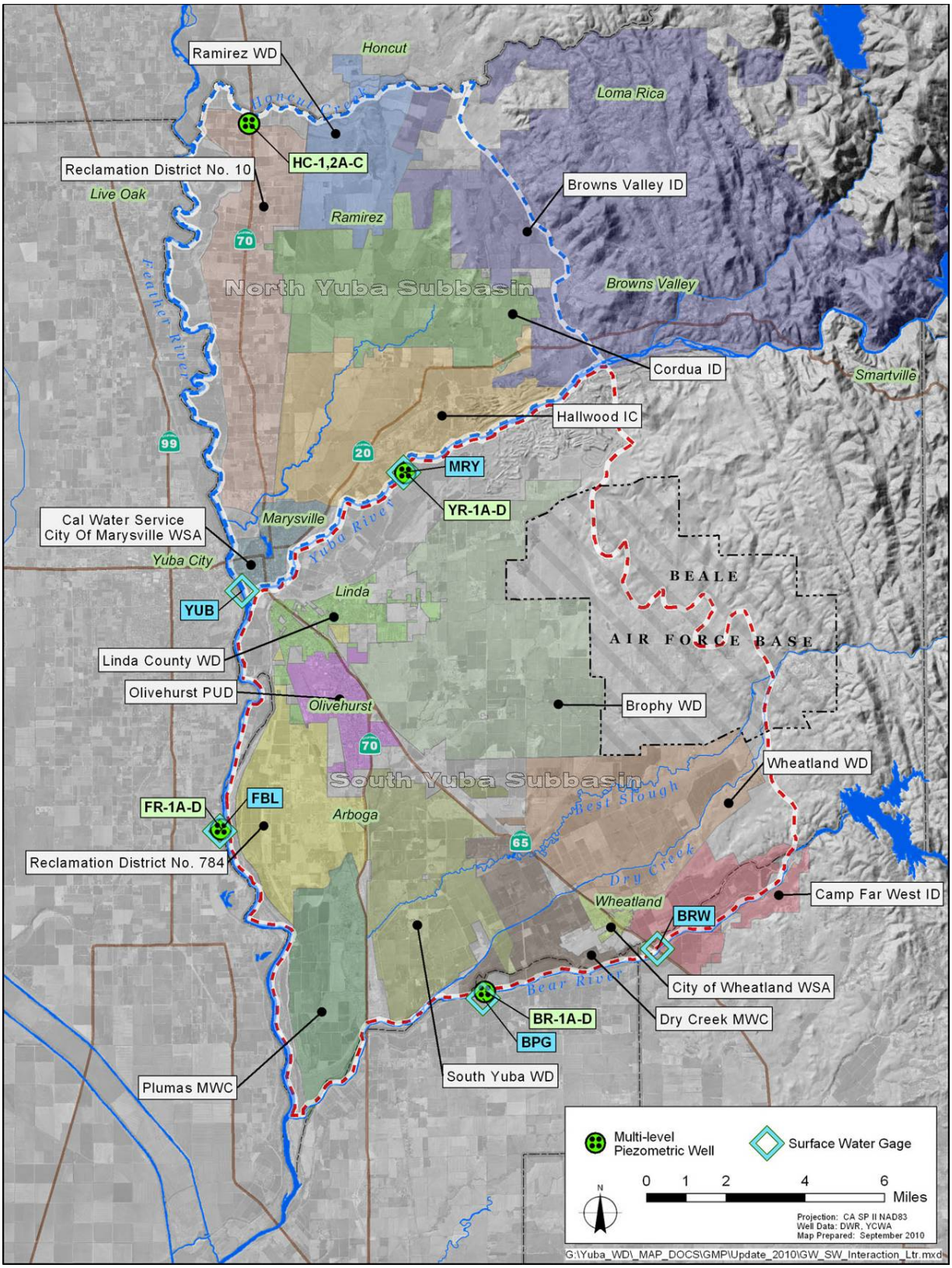



**Figure 3-6. Multilevel Piezometers and River Stage Monitoring Stations**

### *Actions*

YCWA will take the following actions to further the monitoring of groundwater and surface water interaction.

- Evaluate the need for other future groundwater – surface water interaction studies.
- Evaluate the need for and cost effectiveness of installing additional monitoring stations adjacent to surface water bodies.
- Coordinate with DWR on developing uniform data collection protocols and data sharing and archiving procedures.
- Seek outside funding to characterize production wells near the Bear River to improve understanding of the groundwater-surface water interaction.
- Seek outside funding to perform aquifer testing at selected Bear River wells to improve understanding of aquifer parameters in this area.
- Seek outside funding to perform aquifer testing near the Yuba Goldfields while monitoring response in new multilevel piezometer. Correlate groundwater elevations with pond elevations in the Yuba Goldfields.
- Exchange groundwater information with companies operating in the Yuba Goldfield to better understand recharge characteristics in this portion of the basin.

## 3.5.5. Data Management

YCWA, DWR, YCWA's eight member units, the four municipal water purveyors, and Beale AFB maintain a varying range of groundwater-related data in a wide variety of formats. DWR currently maintains much of the groundwater elevation data described in Section 3.5.1. In 2007, YCWA implemented a data management system (DMS) using the Hydstra Data Management Suite. The DMS provides a centralized data storage system for data collected by YCWA and automated tools for data collection, reporting, and sharing. The DMS was developed in coordination with DWR, which also uses Hydstra for its Water Data Library database.

To the extent that groundwater quality data become necessary for YCWA to meet its objective of developing and promoting the beneficial use and regulation Yuba County water resources, YCWA will also develop a system for collecting and maintaining groundwater quality data. The same is true of data for inelastic ground subsidence and groundwater – surface water interaction.

Other data that will be gathered and maintained on an as-needed basis include well construction details and lithologic data available from borings and construction of wells.

### *Actions*

To maintain and improve the usability of data regarding groundwater and aquifer properties in Yuba County, YCWA will take the following actions:

- Continue to coordinate with member units and other water purveyors to determine types of available data and data formats.
- Develop data management methods on an as-needed basis for data determined to be critical to management of water resources in Yuba County.
- Improve the exchange and sharing of data with DWR.
- Develop a data reporting format consistent with CASGEM requirements.

## 3.6. COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION

YCWA considers groundwater protection to be one of the most critical components of ensuring a sustainable groundwater resource, and is empowered through the Act to do the following:

> *…prevent contamination, pollution or otherwise rendering unfit for beneficial use the surface or subsurface water used in said agency, and to commence, maintain and defend actions and proceedings to prevent any such interference with such waters as may endanger or damage the inhabitants, lands, or use of water in, or flowing into the agency…*

In this GMP, resource protection includes both preventing contamination from entering the groundwater basin and remediating existing contamination. Prevention measures include proper well construction and destruction practices, development of wellhead protection measures, and protection of recharge areas. Containment and remediation include measures to prevent contamination from human activities as well as contamination from natural substances such as saline water bodies.

YCWA is committed to coordinating with the various State, local and federal agencies that monitor groundwater quality and are responsible for projects that clean up groundwater contamination where it may exist. Specifically, YCWA does not operate a project related to groundwater contamination cleanup, recharge, storage, or extraction. YCWA's involvement in various aspects of groundwater resource protection are detailed below by category.

### 3.6.1. Well Construction, Abandonment, and Destruction Policies

#### *Well Construction Policies*

Proper construction of water wells is necessary to not only provide a reliable water supply, but also to protect the groundwater resource. CWC Section 231 requires DWR to develop well standards to protect groundwater quality. DWR has documented well standards in Bulletin 74-81 (DWR, 1981) and Bulletin 74-90 (DWR, 1991), the supplement to Bulletin 74-81.

Most counties and some cities have adopted ordinances to protect groundwater quality. In Yuba County, the agency responsible for well construction permitting and inspection is the DEH per Chapter 7.03 of the County Ordinances. Yuba County DEH enforces the DWR well standards, and requires that a permit (**Appendix D**) be issued before a well can be drilled or

modified. Yuba County reviews the permit application to verify that proposed well location and construction details meet DWR requirements. When a well is constructed, modified, or destroyed, the law requires that the drilling contractor submit a Well Completion Report to DWR. The well owner should obtain a copy of this report from the drilling contractor. The well completion report for an existing well should be available in the files of DWR's North Central Region Office.

Only qualified personnel can deepen an existing well, drill a new well, or destroy a well. The California Business and Professions Code requires that "No person shall undertake to dig, bore, or drill a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well, to deepen or reperforate such a well, or to abandon or destroy such a well, unless the person responsible for that construction, alteration, destruction, or abandonment possesses a C-57 Water Well Contractor's License." The California Contractor State License Board Web page shows whether a contractor is licensed and the status of a license, as well as providing information on hiring a contractor.

Contact information for the County regarding wells is as follows:

Yuba County Department of Environmental Health
915 Eighth Street, Suite 123
Marysville, CA 95901-5273
(530) 749-5450

### *Well Abandonment Policies*

Water well standards used by DWR define a well as either abandoned or permanently inactive if it has not been used for 1 year, unless the owner demonstrates intention to use the well again. In accordance with Section 24400 of the California Health and Safety Code, the well owner shall properly maintain an inactive well as evidence of intention for future use in such a way that follows strict requirements enforced by DWR. According to Yuba County Ordinance 7.03.090, a well is deemed abandoned by the definition in DWR Bulletin 74-81 and such abandoned well shall be destroyed or placed inactive by its owner.

### *Well Destruction Policies*

Proper destruction of water wells is necessary to protect the groundwater resource. In Yuba County, the agency responsible for well destruction oversight is the Department of Environmental Health per Chapter 7.03 of the County ordinances. The Yuba County ordinance requires a permit to be issued before a well can be drilled or modified. Yuba County reviews the permit application to verify that proposed abandonment and destruction details meet DWR requirements (DWR 1981, 1991) Therefore, when a well is destroyed, the law requires that the drilling contractor submit a Well Completion Report to DWR. The well owner should obtain a copy of this report from the drilling contractor. The well completion report for an existing well should be available in the files of DWR's North Central Region Office.

### *Actions*

The actions listed below will provide improved dissemination of information regarding well construction, well abandonment, and well destruction policies within Yuba County to appropriate agencies.

- Schedule a meeting with the County Department of Environmental Health, member units, and interested municipal and industrial (M&I) water purveyors to facilitate an exchange of information on existing County well ordinances and discuss possible new ordinances, such as a minimum depth for new wells.

- Assist Yuba County with development of well permitting requirements.

## 3.6.2. Wellhead Protection Measures

Identification of wellhead protection areas is a component of the Drinking Water Source Assessment and Protection (DWSAP) Program, administered by DPH. DPH set a goal for all water systems statewide to complete Drinking Water Source Assessments by mid-2003. All municipalities within Yuba County have completed their required assessments by performing the three major components required by DPH:

- Delineation of capture zones around sources (wells)

- Inventory of potential contaminating activities (PCA) within protection areas

- Vulnerability analysis to identify PCAs to which the source is most vulnerable

Delineation of capture zones includes using groundwater gradient and hydraulic conductivity data to calculate the surface area overlying the portion of an aquifer that contributes water to a well within specified time-of-travel periods. Typically, areas are delineated representing 2-, 5-, and 10-year time-of-travel periods. These protection areas need to be managed to protect the drinking water supply from viral, microbial, and direct chemical contamination.

Inventories of PCAs include identifying potential origins of contamination to the drinking water source and protection areas. PCAs may consist of commercial, industrial, agricultural, and residential sites, or infrastructure sources such as utilities and roads. Depending on the type of source, each PCA is assigned a risk ranking, ranging from “very high” for such sources as gas stations, dry cleaners, and landfills, to “low” for such sources as schools, lakes, and non-irrigated cropland.

Vulnerability analysis includes determining the most significant threats to the quality of the water supply by evaluating PCAs in terms of risk rankings, proximity to wells, and physical barrier effectiveness (PBE). PBE takes into account factors that could limit infiltration of contaminants, including type of aquifer, aquifer material (for unconfined aquifers), pathways of contamination, static water conditions, hydraulic head (for confined aquifers), well operation, and well construction. The vulnerability analysis scoring system assigns point values for PCA risk rankings, PCA locations within wellhead protection areas, and well area PBE; the PCAs to which drinking water wells are most vulnerable are apparent once vulnerability scoring is complete.

### *Actions*

YCWA will take the following actions at address wellhead protection:

- Request that municipalities provide vulnerability summaries from the DWSAP to YCWA to be used for guiding management decisions in the Yuba County groundwater basin.

## 3.6.3. Protection of Recharge Areas

The California Legislature and Governor, as well as private citizens, have become increasingly concerned about groundwater quality and public supply well closures because of the detection of chemicals, such as the gasoline additive MTBE, solvents from industrial sources, and more recently perchlorate. To address these concerns, the Supplemental Report of the 1999 Budget Act and later the Groundwater Quality Monitoring Act of 2001 (AB 599 – Statutes of 2001) required SWRCB to develop a comprehensive ambient groundwater monitoring plan. SWRCB is collaborating with the U.S. Geological Survey (USGS) and Lawrence Livermore National Laboratory (LLNL) to implement the GAMA Program. Section 3.5 provides a detailed explanation of the GAMA program, with Web links for additional information.

### *Actions*

YCWA will take the following actions to protect recharge areas:

- Track the results of ongoing GAMA Special Studies related to groundwater recharge characterization, and determine if these findings warrant further investigation of Yuba County's recharge areas.

- Seek outside funding to quantify the components of recharge to the North and South Yuba subbasins. Compare analytical results to soil and surface geology maps to develop a map of areas that are contributing significant recharge to the basin.

- Work with Yuba County to publicize the need to protect prominent groundwater recharge areas, especially in developing portions of the South Yuba subbasin.

## 3.6.4. Control of Migration and Remediation of Contaminated Groundwater

Lands overlying the North and South Yuba subbasins are primarily farmland and, as such, have potential for contaminating activities from nitrates and pesticides. Additionally, potential sources of groundwater contamination may occur around urban growth areas, such as Wheatland, Olivehurst, and Marysville, and Beale AFB.

Evaluation of the extent and types of contaminants present at Beale AFB began in 1985 and has resulted in the removal of source areas and implementation of remedial activities such as installation of groundwater treatment plants. Beale AFB's goal is to prevent contaminants that exceed drinking water MCLs from leaving the property. The lead agency for groundwater cleanup at the base is the Central Valley Regional Water Quality Control Board (RWQCB). YCWA will coordinate with RWQCB on aspects of this project that could affect groundwater levels near Beale AFB.

Twenty-two locations on the base have been investigated for soil and groundwater contamination. The most common contaminant is trichloroethylene (TCE), a volatile organic compound that was commonly used as a degreaser. Several distinct TCE groundwater contamination plumes are scattered throughout the base. Most plumes are contained within the base, with the exception of Site 13, which is located near the western boundary of the base. Concentrations of TCE below drinking water MCLs have been detected in some off-site domestic and monitoring wells along North Beale Road. RWCQB has suggested consideration of establishing "Consultation Zones" in areas where groundwater actions such as pumping could affect migration or containment of groundwater plumes. However, at this time, no action has been considered by RWQCB or Beale AFB.

Other remedial actions are occurring at Beale AFB to prevent migration of contaminated groundwater. This information is published in annual reports by the Office of Environmental Restoration at Beale AFB. Contact information at Beale AFB is as follows:

Environmental Restoration
9 CES/CEVR
6601 B Street
Beale AFB, CA 95903-1708
DSN: 368-3856
(530) 634-3856

#### *Actions*

YCWA will take the following actions to address contaminated groundwater:

- Coordinate with member units, DWR, other basin groundwater extractors, and other local, State, and federal agencies to pursue actions that result in containment and remediation of water quality problems within the subbasins.

- Request data annually from Beale AFB, RWQCB, and Yuba County DEH regarding groundwater contaminant plumes in Yuba County.

### 3.6.5. Fuel Storage Tanks

Leaky underground storage tanks (LUST) are another source of groundwater contamination in the area; 43 LUST sites have potential or actual groundwater contamination. Work on the sites ranges from initial characterization to remediation. Groundwater contamination is typically limited to shallow groundwater bearing zones, with downgradient areas being the most affected. MTBE has been detected in groundwater near some of the LUST sites. (MTBE is a gasoline oxygenate that is very mobile in groundwater.)

#### *Actions*

YCWA will take the following actions to gain information on fuel storage tanks:

- Provide YCWA members units with information obtained from RWQCB on the extent of the investigation areas of contaminant plumes and LUST sites for their information in developing groundwater extraction patterns and siting of future production or monitoring wells.

### 3.6.6. Control of Saline Water Intrusion

Saline water can slowly degrade a groundwater basin and ultimately render all or part of a basin unusable. Several sources can contribute to increased salinity in groundwater. In addition to sea water intrusion, saline degradation of groundwater can be caused by use and reuse of the water supply; lateral or upward migration of saline water; downward seepage of sewage and industrial wastes; downward seepage of mineralized surface water from streams, lakes, and lagoons; and interzonal or interaquifer migration of saline water.

At present, saline water intrusion has not been identified as a problem in the Yuba groundwater basin, but saline water impacts can be a threat to water quality. YCWA will test for saline water, when appropriate.

YCWA, in cooperation with DWR, has undertaken the task of better understanding the quality of groundwater throughout the basin. This information will be used to manage groundwater resources throughout the basin. Activities under this component may include water quality monitoring, investigation into causes, analysis of impacts, and development and implementation of solutions.

#### *Actions*

YCWA will take the following actions:

- Periodically develop contour maps of basin-wide salinity
- Request EC and other water quality data from M&I groundwater users in Yuba County
- Coordinate with DWR to collect water quality data throughout the Yuba groundwater basin
- Seek outside funding to collect TDS concentrations in transfer wells sampled by DWR in 2002. Correlate TDS with depth and distance from recharge areas and describe observed trends. Publish information obtained from DWR and other sources on salinity trends in an annual basin report.

## 3.7. COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY

Sustainability of the groundwater resource is critical to all citizens in Yuba County. Groundwater is relied on by agricultural and M&I users. For a long-term viable supply of groundwater, YCWA and its member units are seeking ways to increase the conjunctive management abilities in the subbasins over the long term. In 2009, YCWA and Wheatland Water District completed Phase 1 construction of infrastructure needed to deliver surface water to approximately 7,750 acres of land within the District. This project allows groundwater elevations underlying Wheatland Water District to increase naturally (in-lieu recharge) by providing surface water to an area that has historically relied on groundwater. Recharge can also occur via direct recharge. At present, YCWA is not investigating direct recharge because natural recharge and in-lieu recharge have proved sufficient to maintain the health of the basin.

The subsections below describe how YCWA will work toward continued sustainability of groundwater in the Yuba County basin.

### 3.7.1. Sustainable Management of the Groundwater Basin

Groundwater sustainability is critically important to the stated goal of the GMP, which is to maintain a viable groundwater resource for the beneficial use of the people of Yuba County. Groundwater is used throughout the basin by agricultural, municipal, industrial, and residential users, and many of those users rely solely on groundwater for their water supply. This GMP and the actions proposed herein contribute to the sustainability of the groundwater resource

Regarding groundwater management and conjunctive use operations, under the Yuba Accord, Member Units make decisions about the volume and distribution of pumping during groundwater substitution transfers. YCWA's responsibility is to make recommendations to the Member Units based on hydrologic conditions in the basin. It is reasonable to expect that, in some years, YCWA will recommend reducing or halting pumping in certain areas of the basin to allow groundwater elevations to recover. If a third party is impacted by groundwater substitution transfers, any claims will be addressed directly by the nearest Member Unit. YCWA may provide technical support to a Member Unit to determine whether a claim is related to conjunctive use of groundwater, and recommend the best methods for mitigating the impact.

#### *Actions*

YCWA will take the following action to guide management of the groundwater basin:

- Make yearly recommendations to Yuba Accord Member Units regarding the volume and distribution of pumping for groundwater substitution transfers.

### 3.7.2. Increase Understanding of Groundwater Stressors in Yuba County Basin

One key element in ensuring sustainability of the groundwater resource in the Yuba County basin is to increase understanding of groundwater and how it responds to various stresses. These stresses include groundwater extractions, changes in recharge to the aquifer, and changes in climate.

#### *Actions*

YCWA will take the following actions to better understand and quantify stressors to the Yuba groundwater basin:

- Pursue outside funding to assist in improving available tools and models to support groundwater management
- Analyze potential effects of climate change on recharge of the Yuba County groundwater basin
- Develop and implement a plan to characterize recharge of the groundwater basin from the Yuba Goldfields

### 3.7.3. Evaluation of Future Land Use Changes and Impact to Groundwater Resources

Yuba County is updating its General Plan concurrent with the update of this GMP. Representatives from the County have indicated significant growth is projected in the County, particularly in the South Yuba subbasin area. Much of the growth will take place through replacement of agricultural lands, supplied with surface water, for municipal or industrial land uses, supplied by groundwater. This type of land use change and associated water supply has potential to affect groundwater conditions because of both increased pumping and a loss of aquifer recharge from agricultural irrigation.

#### *Actions*

YCWA will take the following actions to better understand projected land use changes and their impacts to the Yuba groundwater basin:

- Work with Yuba County to develop policies regarding conversion of agricultural lands, supplied by surface water, to M&I usage, supplied by groundwater
- Work with Yuba County to characterize current and projected groundwater usage in Yuba County outside the member unit areas
- Work with Yuba County on characterization of water usage in its General Plan Update

# CHAPTER 4.0
# PLAN IMPLEMENTATION

**Table 4-1** summarizes the action items presented in Chapter 3 and presents an implementation schedule. Many of these actions involve coordination by DWR with other local and federal agencies; most actions will begin within 6 months, following adoption of this updated GMP. A few activities involve assessing trends in basin monitoring data to determine adequacy of the monitoring network. These assessments will be made as new monitoring data become available for review by YCWA; results will be documented in the Annual Monitoring and Measurement Report (see below).

## 4.1. ANNUAL MONITORING AND MEASUREMENT REPORT

Since the adoption of the GMP in 2005, YCWA has documented the results of groundwater monitoring activities annually. YCWA will continue to report on progress made implementing this updated GMP in the Annual Monitoring and Measurement Report, which will summarize groundwater conditions in the subbasins and document groundwater management activities from the previous year. The Annual Monitoring and Measurement Report includes the following:

- Summary of monitoring results, including a discussion of historical trends.
- Summary of management actions during the period covered by the report.
- Discussion, supported by monitoring results, of whether management actions are achieving progress in meeting BMOs.
- Summary of any plan component changes, including addition or modification of BMOs, during the period covered by the report.

The Annual Monitoring and Measurement Report is completed by June 1 each year and reports on conditions and activities completed through April 31 of the prior year. Annual meetings are held with local agencies that are managing groundwater within the basin, and are complying with the YCWA GMP (pursuant to CWC Section 10755.3).

## 4.2. FUTURE REVIEW OF GROUNDWATER MANAGEMENT PLAN

This GMP is intended to be a framework for regionally coordinated management efforts in the Yuba County groundwater subbasins. Many of the identified actions will likely evolve as YCWA actively manages and learns more about the basin. Many additional actions will also be identified in the Annual Monitoring and Measurement Report described above. The GMP is therefore intended to be a living document, and evaluating all of the actions and objectives over time will be important to determine how well they are meeting the overall goal of the GMP. YCWA plans to evaluate this entire plan within five years of adoption and update it as necessary.

## 4.3. NEAR-TERM IMPLEMENTATION ACTIONS

It is envisioned that implementation of the GMP, as well as many other groundwater management-related activities, will be funded from a variety of sources, including revenues from the water transfers under the Yuba Accord; YCWA; in-kind services by member units; State or federal grant programs; and local, State, and federal partnerships. Some of the items that would likely require additional resources include the following:

- Collection of additional subsidence data
- Construction of monitoring wells where critical data gaps exist
- Recharge area investigations
- Stream-aquifer interaction studies
- Development of tools for improved groundwater basin understanding and management

During the first year of plan implementation, YCWA will prepare an estimate of some of the likely costs associated with the above activities and other management actions included in **Table 4-1**. Once these costs are better understood, YCWA will collaborate with members of the WAC and State and federal agencies to identify and pursue funding opportunities to implement the management actions.

## 4.4. INTEGRATED REGIONAL WATER MANAGEMENT

This GMP will become the groundwater management component in the Yuba County IRWMP which is currently being updated. However, the GMP only pertains to the alluvial portion of the IRWM Plan area. It is anticipated that some of the management actions included in the GMP could be funded through DWR's IRWM Program. YCWA will continue to track funding opportunities for groundwater management actions during the implementation of the IRWM Plan. Updates on status of management actions and funding sources will be provided in the GMP annual reports.

## Table 4-1. Implementation Information for GMP Actions

| | | Relative Cost | Implementability | Schedule |
|---|---|---|---|---|
| **Component Category 1: Involving the Public** | | | | |
| ***Involving the Public*** | | | | |
| 1 | Publish an Annual Groundwater Monitoring Report summarizing groundwater conditions in the Yuba County groundwater basin relative to historical trends, and describing ongoing groundwater management activities. Also publish a groundwater fact sheet (i.e., a one-page summary of findings from the Annual Groundwater Monitoring Report) annually. Both reports will be posted on YCWA Web page and available for public distribution. | $ | Immediate | Recurring Annually |
| 2 | Hold annual public/stakeholder meetings to provide updates on groundwater management activities and groundwater conditions in the basin; this meeting can be scheduled to coincide with release of the Annual Groundwater Monitoring Report. | $ | Immediate | Recurring Annually |
| 3 | Develop an enhanced Internet presence for YCWA groundwater activities; potential items to include on the Web site are the Proposition 13 Hydrogeologic Understanding Report, annual groundwater monitoring reports and fact sheets, notices for public meetings, and groundwater monitoring data. | $ | Immediate | One Time with Periodic Updates |
| 4 | Develop a conjunctive use brochure for the general public highlighting the benefits of conjunctive use. | $ | Immediate | One Time |
| ***Involving Other Agencies Within and Adjacent to YCWA Area*** | | | | |
| 5 | YCWA will invite each of the agencies included in Table 3-2 to an annual groundwater briefing to present and discuss the Annual Groundwater Monitoring Report. | $ | Immediate | Recurring Annually |
| 6 | YCWA will encourage the sharing of groundwater level, quality and pumping data among these agencies. | $ | Immediate | Ongoing |
| 7 | YCWA will attend meetings for groundwater management planning activities in Butte, Sutter, and Placer counties and share relevant information with Yuba County interests. | $ | Immediate | Ongoing |
| ***Formation of Advisory Committee for GMP Development*** | | | | |
| 8 | YCWA will meet with the WAC annually to present and discuss findings from the Annual Groundwater Monitoring Report. | $ | Immediate | Recurring Annually |
| ***Develop relationships with State and federal agencies*** | | | | |
| 9 | Continue to develop working relationships with local, State, and federal regulatory agencies. | $ | Immediate | Ongoing |

## Table 4-1. Implementation Information for GMP Actions (Continued)

| | | Relative Cost | Implementability | Schedule |
|---|---|---|---|---|
| ***Pursuing Partnership Opportunities*** | | | | |
| 10 | YCWA will continue to track and pursue grant opportunities to fund groundwater management activities and local water infrastructure projects. | $ | Immediate | Ongoing |
| **Component Category 2: Monitoring Program** | | | | |
| ***Groundwater Storage and Elevation Monitoring*** | | | | |
| 11 | Coordinate with member units, DWR, and other basin groundwater extractors (e.g., Beale AFB, municipalities, etc.) to identify an appropriate group of wells for monitoring to better understand groundwater level fluctuations. Preference will be given to wells currently in an agency's monitoring network that (1) have long records of historical water level data and are useful in assessing trends within the subbasins, (2) have uniform protocols used for measuring and recording water level data, (3) are nonproducing wells or have relatively low extraction volumes so that water level readings represent relatively static levels, and (4) have well construction information. Geographic distribution, basin hydrogeology, and areas of extraction will also be considered. | $ | Immediate | Ongoing |
| 12 | Coordinate with member units, DWR, and other basin groundwater extractors to ensure that selected wells are maintained as part of a long-term monitoring network. | $ | Immediate | Ongoing |
| 13 | Coordinate with member units, DWR, and other basin groundwater extractors to ensure that needed water level data are collected, verify that uniform data collection protocols are used among the agencies, and confirm that data sharing and archiving procedures are implemented. | $ | Immediate | Ongoing |
| 14 | Provide training for the member units and other basin groundwater extractors on implementing data collection protocols, as required or if requested. | $ | Immediate | Ongoing |
| 15 | Consider ways to fill gaps in the monitoring well network by identifying additional existing suitable wells or identifying opportunities for constructing new monitoring wells. | $ | Immediate | Ongoing |
| 16 | Seek outside funding and identify potential candidate wells for well characterization survey(s) to determine extraction intervals and total well depth for improved understanding of vertical gradients. | $$ | Funding Required | One Time |
| 17 | Seek outside funding for installation of a multilevel piezometer near the Yuba Goldfields area to improve understanding of recharge in that portion of the basin. | $$ | Funding Required | One Time |
| 18 | Semiannually obtain groundwater elevation measurements from Beale AFB. | $ | Immediate | Semiannually |

## Table 4-1. Implementation Information for GMP Actions (Continued)

| | | Relative Cost | Implementability | Schedule |
|---|---|---|---|---|
| 19 | Identify opportunities and potential outside funding sources for monitoring groundwater levels near current or proposed future municipal pumping locations. | $ | Immediate | Ongoing |
| 20 | Track the requirements for the upcoming CASGEM Program and provide the required information to DWR. | $ | Requires Program Finalization | Ongoing |
| ***Groundwater Quality Monitoring*** | | | | |
| 21 | Coordinate with member units, DWR, and other basin groundwater extractors (e.g., Beale AFB, municipalities, etc.) to identify an appropriate group of wells for monitoring both during transfer and non-transfer years. Preference will be given to wells currently in an agency's monitoring network that (1) have long records of historical water quality data and are useful in assessing trends within the subbasins, (2) have uniform protocols used for measuring and recording the water quality data, (3) are either producing or nonproducing wells, appropriately selected for the constituent being monitored, and (4) have well construction information. Geographic distribution, basin hydrogeology, and areas of extraction will also be considered. | $ | Immediate | Ongoing |
| 22 | Coordinate with member units, DWR, and other basin groundwater extractors to ensure that needed water quality data are collected, verify that uniform data collection protocols are used among the agencies, and confirm that data sharing and archiving procedures are implemented. | $ | Immediate | Ongoing |
| 23 | Coordinate with member units, DWR, other basin groundwater extractors, and other local, State, and federal agencies to identify where wells may exist in areas with sparse groundwater quality data. Identify opportunities for collecting and analyzing water quality samples from those wells. If wells are sampled through other programs, coordinate with the appropriate agency for sharing data. | $ | Immediate | Ongoing |
| ***Inelastic Subsidence*** | | | | |
| 24 | Perform repeat level surveys on subsidence monitoring benchmarks at least every 5 years or on an agreed schedule with DWR. | $ | Immediate | Every 5 Years |
| 25 | Identify locations especially vulnerable to damage from subsidence (e.g., levees, canals, pipelines) and ensure that monitoring network is adequate in those areas. | $$ | | One-Time with Periodic Updates |

## Table 4-1. Implementation Information for GMP Actions (Continued)

| | | Relative Cost | Implementability | Schedule |
|---|---|---|---|---|
| ***Groundwater and Surface Water Interaction*** | | | | |
| 26 | Evaluate the need for other future groundwater surface water interaction studies. | $ | Immediate | Ongoing |
| 27 | Evaluate the need and cost effectiveness of installing additional monitoring stations adjacent to surface water bodies. | $ | Immediate | Ongoing |
| 28 | Coordinate with DWR on development of uniform data collection protocols and data sharing and archiving procedures. | $ | Immediate | One Time with Periodic Updates |
| 29 | Seek outside funding to characterize production wells near the Bear River to improve understanding of the groundwater-surface water interaction. | $$ | Requires Funding | One Time |
| 30 | Seek outside funding to perform aquifer testing at selected Bear River wells to improve understanding of aquifer parameters in this area. | $$ | Requires Funding | One Time |
| 31 | Seek outside funding to perform aquifer testing near the Yuba Goldfields while monitoring response in new multilevel piezometer. Correlate groundwater elevations with pond elevations in Yuba Goldfields. | $$ | Requires Funding | One Time |
| 32 | Exchange groundwater information with companies operating in the Yuba Goldfields to better understand recharge characteristics in this portion of the basin. | $ | Immediate | Ongoing |
| ***Data Management*** | | | | |
| 33 | Continue to coordinate with member units and other water purveyors to determine types of data and data formats available. | $ | Immediate | Ongoing |
| 34 | Develop data management methods on an as needed basis for data determined critical to management of water resources in Yuba County. | $ | Immediate | Ongoing |
| 35 | Improve the exchange and sharing of data with DWR. | $ | Immediate | Ongoing |
| 36 | Develop data reporting format consistent with CASGEM requirements. | $ | Immediate | Ongoing |
| **Component Category 3: Groundwater Resource Protection** | | | | |
| ***Well Construction, Abandonment, and Destruction Policies*** | | | | |
| 37 | Schedule a meeting with the County Division of Environmental Services, member units, and interested M&I water purveyors to facilitate an exchange of information on existing County well ordinances, and discuss possible new ordinances, such as a minimum depth for new wells. | $ | Immediate | Annually |
| 38 | Assist Yuba County with development of well permitting requirements. | $ | Immediate | One Time |

## Table 4-1. Implementation Information for GMP Actions (Continued)

| | | Relative Cost | Implementability | Schedule |
|---|---|---|---|---|
| ***Wellhead Protection Measures*** | | | | |
| 39 | Request that municipalities provide vulnerability summaries from the DWSAP to YCWA to be used for guiding management decisions in the basin. | $ | Immediate | One Time |
| ***Protection of Recharge Areas*** | | | | |
| 40 | Track the results of ongoing GAMA Special Studies Projects related to groundwater recharge characterization, and determine if these findings warrant further investigation of Yuba County's recharge areas. | $ | Immediate | Ongoing |
| 41 | Seek grant funding to quantify the components of recharge to the North and South Yuba Subbasins. Compare analytical results to soil and surface geology maps to develop a map of areas that are contributing significant recharge to the basin | $$ | Requires Funding | One Time |
| 42 | Work with Yuba County to publicize the need to protect prominent groundwater recharge areas, especially in the developing portions of the South Yuba Subbasin. | $ | Immediate | Ongoing |
| ***Control of Migration and Remediation of Contaminated Groundwater*** | | | | |
| 43 | Coordinate with member units, DWR, other basin groundwater extractors, and other local, State, and federal agencies to pursue actions that result in containment and remediation of water quality problems within the subbasins. | $ | Immediate | Ongoing |
| 44 | Request data annually from Beale AFB, RWQCB, and Yuba County DPH regarding groundwater contaminant plumes in Yuba County. | $ | Immediate | Annually |
| ***Fuel Storage Tanks*** | | | | |
| 45 | Provide YCWA members units with information obtained from RWQCB on the extent of the contaminant plumes and LUST sites to develop groundwater extraction patterns and site future production or monitoring wells. | $ | Immediate | Annually |
| ***Control of Saline Water Intrusion*** | | | | |
| 46 | Periodically develop contour maps of basin wide salinity. | $ | Immediate | Annually |
| 47 | Request EC and other water quality data from M&I groundwater users in Yuba County. | $ | Immediate | Annually |
| 48 | Seek outside funding to collect TDS concentrations in transfer wells sampled by DWR in 2002. Correlate TDS with depth and distance from recharge areas and describe observed trends. | $$ | Funding Required | One Time |
| 49 | Publish information obtained from DWR and other sources on salinity trends in annual basin report. | $ | Immediate | Annually |

## Table 4-1. Implementation Information for GMP Actions (Continued)

| | | Relative Cost | Implementability | Schedule |
|---|---|---|---|---|
| **Component Category 4: Groundwater Sustainability** | | | | |
| | | | | |
| 50 | Make yearly recommendations to Yuba Accord Member Units regarding the volume and distribution of pumping for groundwater substitution transfers. | $ | Immediate | Annually |
| ***Increase Understanding of Groundwater Stressors in Yuba Basin*** | | | | |
| 51 | Pursue outside funding to assist in improving available tools and models to support groundwater management. | $$ | Funding Required | One Time |
| 52 | Analyze potential effects of climate change on recharge of the Yuba County groundwater basin. | $$ | Funding Required | One Time |
| 53 | Develop and implement a plan to characterize recharge of the groundwater basin from the Yuba Goldfields. | $$ | Contingent on Funding for Goldfields Monitoring Well and Aquifer Testing | One Time |
| ***Evaluation of Future Land Use Changes and Impact to Groundwater Resources*** | | | | |
| 54 | Work with Yuba County to develop county policies regarding conversion of agricultural lands, supplied by surface water, to M&I usage, supplied by groundwater. | $ | Requires Cooperation with Yuba County | One Time |
| 55 | Work with Yuba County to characterize current and projected groundwater usage in Yuba County outside the member unit areas. | $ | Requires Cooperation with Yuba County | One Time |
| 56 | Work with Yuba County on characterization of water usage in its General Plan Update | $ | Requires Cooperation with Yuba County | One Time |

Key:
$ = Low cost (<$50,000)
$$ = Medium cost ($50,000-$200,000)
$$$ = High cost ($>200,000)
AFB = Air Force Base
CASGEM = California Statewide Groundwater Elevation Monitoring
DEH = California Department of Environmental Health
DPH = California Department of Public Health
DWR = California Department of Water Resources
EC = electrical conductivity
GAMA = Groundwater Ambient Monitoring and Assessment
LUST = leaking underground storage tank
M&I = municipal and industrial
RWQCB = Regional Water Quality Control Board
State = State of California
TDS = total dissolved solids
YCWA = Yuba County Water Agency

# CHAPTER 5.0
# REFERENCES

Bookman-Edmonston Engineering, Inc., 1992. (Bookman Edmonston). Ground Water Resources and Management in Yuba County. September.

California Department of Water Resources (DWR). California Well Standards. 1974. 1990. Bulletin 74-81 and 74-90 combined. 1974, 1990. Division of Planning and Local Assistance.

———. 2001. Sacramento Valley Water Management Agreement. September.

———. 2003. California Groundwater. Bulletin 118. Update.

Sacramento Groundwater Authority. 2003. Groundwater Management Plan. December.

State Water Resource Control Board (SWRCB). 2010. Groundwater Ambient Monitoring and Assessment (GAMA), Domestic Well Project Groundwater Quality Data Report. Yuba County Focus Area. Groundwater Protection Section. July.

U.S. Department of the Interior, Bureau of Reclamation and California Department of Water Resources (Reclamation and DWR). 2005 Short-Term Sacramento Valley Water Management Agreement Environmental Impact Statement/Environmental Impact Report. June.

U.S. Geological Survey (USGS). 2008. Ground-Water Quality Data in the Middle Sacramento Valley Study Unit, 2006 – Results from the California GAMA Program. Draft. Prepared in cooperation with the California State Water Resources Control Board.

Yuba County. 1996. General Plan.

———. 2008. Integrated Regional Water Management Plan. Submitted to Integrated Regional Water Management Plan Water Management Group. February.

Yuba County Water Agency (YCWA). 2005. Yuba County Groundwater Management Plan. March.

———. 2006. 2005 – 2006 Annual Monitoring and Measuring Report.

———. 2006. Lower Yuba River Accord.

———. 2008. Hydrogeologic Understanding of the Yuba Basin. September.

———. 2010. 2009 – 2010 Annual Monitoring and Measuring Report.

Yuba County Water Agency, California Department of Water Resources, and U.S. Department of the Interior, Bureau of Reclamation (YCWA, DWR, and Reclamation). 2007a. Draft Yuba Accord Environmental Impact Report/Environmental Impact Statement. June.

———. 2007b. Final Yuba Accord Environmental Impact Report/Environmental Impact Statement. October.

http://www.waterboards.ca.gov/water_issues/programs/gama/docs/yubareportsummary.pdf

# Appendix A

# The Yuba County Water Agency Act

*This page left blank intentionally.*

# CHAPTER 84

# YUBA COUNTY WATER AGENCY ACT


ection

4–1. Creation; name; territory.
4–2. Definitions.
4–3. Body politic and corporate; general powers; exercise of powers.
4–3.1. Perpetual succession.
4–3.2. Seal.
4–3.3. Actions.
4–3.4. Eminent domain.
4–3.5. Property acquisition; use; disposal.
4–3.6. Contracts; employment of labor; necessary acts; construction.
4–3.7. Contracts for water service.
4–3.8. Indebtedness.
4–4. Availability of water supply; necessary acts.
4–4.1. Hydroelectric power; development; sale.
4–4.2. Flood control; conservation.
4–4.3. Storage of water; conservation and reclamation; actions involving use of waters or water rights.
4–4.4. Acquisition of works, waters and water rights.
4–4.5. Operation and maintenance of works and property.
4–4.6. Investigations; studies.
4–4.7. Transmission of electric energy.
4–4.8. Blank.
4–4.9. Repealed.
4–4.10. Reimbursement of county for expenses.
4–4.11. Contracts for sale of right to use falling water for power purposes.
4–4.12. Use of water for development of county in which water originates.
4–4.13. Hydroelectric alternate energy supply sources.
4–5. Transfer of water or rights to use agency works; charges; contract provisions.
4–5.1. Contracts with member units; purposes.
4–5.2. Long-term contracts; sale of surplus water; public hearings.
4–5.3. Suspension of delivery of water to delinquent member units.
–5.4. Liability of member units for taxes; contract provisions.
–5.5. Reduction of obligations.
–5.6. Assignment of rights by member units.
–5.7. Sale or disposal of capital assets; use of proceeds.
–6. Cooperation and contracts with United States; reclamation.
–6.1. United States contract fund; use.
–6.2. Cooperation with United States, state, municipalities, districts, etc.; contracts.
–6.3. Contracts with state or agency for assumption of indebtedness.
–7. Directors; compensation; powers; quorum.
–7.1. Repealed.
–7.2 to 84–7.4. Repealed.
–8. County officers and employees as officers and employees of agency; performance of duties.
–8.1. Employment of additional personnel.
–9. Ordinances, resolutions and other legislative acts; initiative and referendum.
–10. Claims against agency; law governing; preparation; presentation; audit.

Section

84–11. Property.
84–12, 84–12.1. Repealed.
84–13. Debt limit.
84–13.1. Bonded indebtedness; limitation.
84–14. Ad valorem tax; purposes; limitation.
84–14.1. Assessments; collection of taxes.
84–14.2. Statement of total value of property within agency.
84–14.3. Tax rate; levy.
84–14.4. Statement of tax rate; transmittal to county auditors.
84–14.5. Time and manner of collection of taxes; payment to treasurer of principal county.
84–14.6. Apportionment of money paid for redemption from tax sales.
84–14.7. Lien of tax; enforcement of collection.
84–15. Bonds; resolution; special bond election; liability of member units.
84–16. Bonds; issuance under Revenue Bond Law of 1941.
84–17. Revenue bonds as legal investments.
84–18. Improvement; conformity to report, plans and specifications; additional bonds; defeat of bond proposal; waiting period.
84–19. Surplus moneys; disposition; use.
84–20. Maintenance and operation costs; apportionments from revenue; use of surplus.
84–21. Action to test validity of bonds or contract.
84–22. Effect upon municipalities, districts or other agencies.
84–23. Vested rights.
84–24. Action to test validity of existence of agency.
84–25. Dissolution.
84–26. Legislative findings and declaration.
84–27. Partial invalidity.
84–28. Short title.

*An act to create the Yuba County Water Agency, to develop and promote the beneficial use and regulation of the water resources of Yuba County, prescribing the agency's powers and duties, providing for its organization, operation and management and authorizing the acquisition of property and works to carry out the purposes of the agency, authorizing the incurrence of indebtedness, providing for the issuance of bonds payable solely from revenues, providing for the levy and collection of taxes for the payment of general agency expenses, and for co-operation and contracts with any entity. (Stats.1959, c. 788, p. 2780.)*

**Cross References**

Procedure for letting contracts, see Public Contract Code § 21351.

## § 84–1. Creation; name; territory

Section 1. A district hereinafter called an agency is hereby created for the purpose of accomplishing a function of statewide importance. Said agency shall be known as the Yuba County Water Agency and shall include all territory lying within the exterior boundaries of the County of Yuba, and shall also include territory contiguous to but outside said boundaries which becomes or is included within a member unit as hereinafter defined.

(Stats.1959, c. 788, p. 2780, § 1.)

**Cross References**

Boundaries of Yuba County, see Government Code § 23158.

**Library References**

Waters and Water Courses ⟹183½.
WESTLAW Topic No. 405.
C.J.S. Waters § 243.

## § 84–2. Definitions

Sec. 2. As used in this act, the following words shall have the following respective meanings unless the context indicates otherwise:

(a) "Agency" is the Yuba County Water Agency.

(b) "County" or "principal county" is the County of Yuba of the State of California.

(c) "United States" is the United States of America including any one or more of the bureaus, commissions, divisions, departments, boards, agencies, and officers of the United States of America.

(d) "State" means the State of California including any one or more of the bureaus, commissions, divisions, departments, boards, agencies, and officers of the State of California.

(e) "Work" or "works" includes dams and dam sites, reservoirs and reservoir sites, and all conduits and other facilities useful in the control, conservation, diversion and transmission of water; power generation and transmission facilities, and all land, property, franchises, easements, rights-of-way and privileges necessary or useful to operate or maintain any of the foregoing.

(f) "District" as used hereafter means any of the following lying within or partially within, or contiguous to the agency: irrigation districts, county water districts, water conservation districts, water districts, soil conservation districts, municipalities, towns, flood control districts, levee districts, mutual water companies, public utilities as defined in Section 216 of the Public Utilities Code, and any other districts or political subdivisions of the state empowered by law to appropriate water and deliver water to water users.

(g) "Member unit" means any district which enters into a contract with the agency for (i) the repayment in whole or in part to the agency or any other person, corporation, public district, State of California or any political subdivision thereof, or the United States, of any or all the construction costs of any works constructed by or on behalf of the agency or such district, or for (ii) the underwriting in whole or in part of any or all of such construction costs, or for (iii) the repayment in whole or in part to the agency or any other person, corporation, public district, State of California or any political subdivision thereof, or the United States, of any or all of the cost of furnishing water or a water supply to the agency or such district or the underwriting in whole or in part of such cost, or for (iv) the payment in whole or in part for water to be furnished or sold to such district by the agency or the United States.

(h) "Elector" means a resident of the agency who is qualified under the laws of the State of California to vote at a general election.

(i) "May" is permissive and "shall" is mandatory.

(j) "Board" means the board of directors of the agency.

(Stats.1959, c. 788, p. 2780, § 2. Amended by Stats.1978, c. 914, p. 2876, § 1.)

## § 84–3. Body politic and corporate; general powers; exercise of powers

Sec. 3. The Yuba County Water Agency is hereby declared to be and is a body politic and corporate, and as such shall have, among others, the powers enumerated in this act and such other powers as the law may provide. The powers of the agency shall, except as otherwise provided, be exercised by the board of directors thereof.

(Stats.1959, c. 788, p. 2781, § 3.)

## § 84–3.1. Perpetual succession

Sec. 3.1. The agency shall have perpetual succession.

(Stats.1959, c. 788, p. 2781, § 3.1.)

## § 84–3.2. Seal

Sec. 3.2. The agency shall have the power to adopt a seal and alter it at its pleasure.

(Stats.1959, c. 788, p. 2782, § 3.2).

## § 84–3.3. Actions

Sec. 3.3. The agency shall have the power to sue and be sued, except as otherwise provided herein or by law, in all actions and proceedings in all courts, commissions, boards and tribunals of competent jurisdiction.

(Stats.1959, c. 788, p. 2782, § 3.3.)

**Library References**

Sovereign immunity study. Cal.Law Revision Comm. (1963) Vol. 5, p. 30.

## § 84–3.4. Eminent domain

Sec. 3.4. The agency shall have the power of eminent domain to acquire within or without the agency any property necessary for carrying out the powers and purposes of the agency, except that the agency shall not have the power to acquire by condemnation publicly owned property, nor property owned by private irrigation companies, held or used for the development, storage or distribution of water for public use, unless provision is made to furnish substitute facilities for the use of such public agency or private irrigation company.

In lieu of compensation and damages for the taking or damaging of any public utility facility which must be replaced by the public utility to provide service to the public equivalent to that provided by the facility taken or damaged, the agency shall pay to the public utility owning such facility its

actual cost incurred to replace in kind the facility so taken or damaged, less proper deductions for depreciation together with its actual cost incurred to rearrange or rehabilitate the facilities of such public utility not taken or damaged but required to be rearranged or rehabilitated by reason of such taking or damaging.

No action in eminent domain to acquire property or interests therein outside the boundaries of the County of Yuba shall be commenced unless the board of supervisors of each affected county has consented to such acquisition by resolution.

(Stats.1959, c. 788, p. 2782, § 3.4. Amended by Stats.1975, c. 581, p. 1171, § 18.)

**Law Revision Commission Comment**

**1975 Amendment**

The deleted portions of Section 3.4 [Water C.App. § 84–3.4] are superseded by provisions of the Eminent Domain Law. See Code Civ.Proc. §§ 1230.020 (uniform procedure), 1240.610 et seq. (more necessary public use), 1240.010 (declaration that a use is a public use is unnecessary), 1240.110 (right to take any property or any right or interest in property), 1250.210 (identification of plaintiff). See also Code Civ.Proc. §§ 1240.040 and 1245.210 et seq. (resolution of necessity), 1235.170 ("property" defined).

**Historical and Statutory Notes**

Operative effect of 1975 amendment, see note under § 102–7.

**Library References**

Eminent Domain ⟹9.
WESTLAW Topic No. 148.
C.J.S. Eminent Domain § 24.
Recommendations relating to condemnation law and procedure in special districts. 12 Cal.L.Rev.Comm. Reports 1101 (1974).
Sovereign immunity study. Cal.Law Revision Comm. (1963) Vol. 5, p. 87.

## § 84–3.5. Property acquisition; use; disposal

Sec. 3.5. The agency shall have the power to take absolutely or on condition, by grant, purchase, gift, devise, lease, or otherwise, with or without the privilege of purchasing, real and personal property of any kind, or any interest in real or personal property, within or without the agency, necessary to the full exercise of its powers, and to hold, use, enjoy, and to lease or dispose of the same subject to the limitations set forth in Section 11.

(Stats.1959, c. 788, p. 2782, § 3.5.)

## § 84–3.6. Contracts; employment of labor; necessary acts; construction

Sec. 3.6. The agency shall have the power to make contracts, employ labor and to do all acts necessary for the full exercise of its purposes and powers. The board may cause construction or other work to be performed or carried out by contracts or by the agency under its own superintendence as hereinafter provided.

(Stats.1959, c. 788, p. 2783, § 3.6.)

## § 84–3.7. Contracts for water service

Sec. 3.7. The agency shall have power to enter into contracts with any private company formed and existing exclusively to provide water service within Yuba County whenever such contract appears to the board to be in the public interest.

(Stats.1959, c. 788, p. 2783, § 3.7.)

## § 84–3.8. Indebtedness

Sec. 3.8. The agency shall have power to borrow money, incur indebtedness and issue bonds or other evidence of such indebtedness in the manner provided herein; also to refund or retire any indebtedness or lien that may exist against the agency or property thereof.

(Stats.1959, c. 788, p. 2783, § 3.8.)

## § 84–4. Availability of water supply; necessary acts

Sec. 4. The agency shall have the power as limited in this act to do any and every lawful act necessary in order that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants within the agency, including, but not limited to irrigation, domestic, fire protection, municipal, commercial, industrial, recreational, and all other beneficial uses and purposes.

(Stats.1959, c. 788, p. 2783, § 4.)

**Library References**

Waters and Water Courses ⟹190.
WESTLAW Topic No. 405.
C.J.S. Waters § 228.

## § 84–4.1. Hydroelectric power; development; sale

Sec. 4.1. The agency shall have the power to develop hydroelectric power to the extent that such power can be developed in connection with the construction and operation of its projects, and to enter into contracts for the sale thereof for a term not to exceed 50 years, and to pledge the revenue therefrom for the payment of principal and interest on revenue bonds. Such power may be marketed at the bus bar and at wholesale rates to any public or private agency, or both, engaged in the sale of electric power at retail.

(Stats.1959, c. 788, p. 2783, § 4.1.)

## § 84–4.2. Flood control; conservation

Sec. 4.2. The agency shall have the power to control the flood and storm waters of the agency and the flood and storm waters of streams that have their sources outside of the agency, which streams and floodwaters flow into the agency, and to conserve such waters for beneficial and useful purposes of said agency by spreading, storing, retaining and causing to percolate into the soil within or without said agency, or to save or conserve in any manner all or any

of such waters and protect from damage from such flood or storm waters the watercourses, watersheds, public highways, life and property in said agency, and the watercourses outside of the agency of streams flowing into the agency.
(Stats.1959, c. 788, p. 2783, § 4.2.)

**Library References**

Levees and Flood Control ⟹9.
WESTLAW Topic No. 235.
C.J.S. Levees and Flood Control § 24 et seq.

## § 84–4.3. Storage of water; conservation and reclamation; actions involving use of waters or water rights

Sec. 4.3. The agency shall have the power to store water in surface or underground reservoirs within or outside of the agency for the common benefit of the agency; to conserve and reclaim water for present and future use within the agency; to appropriate and acquire water and water rights, and import water into the agency and to conserve and utilize, within or outside of the agency, water for any purpose useful to the agency; to commence, maintain, intervene in, defend or compromise, in the name of the agency in behalf of the landowners therein, or otherwise, and to assume the costs and expenses of any action or proceeding involving or affecting the ownership or use of waters or water rights, within or without the agency, used or useful for any purpose of the agency or of common benefit to any land situate therein or involving the wasteful use of water therein, or to prevent the interference with or diminution of, or to declare rights in the natural flow of any stream or surface or subterranean supply of waters used or useful for any purpose of the agency or of common benefit to the lands within the agency or to its inhabitants, or to prevent unlawful exportation of water from said agency, or to prevent contamination, pollution or otherwise rendering unfit for beneficial use the surface or subsurface water used in said agency, and to commence, maintain and defend actions and proceedings to prevent any such interference with such waters as may endanger or damage the inhabitants, lands, or use of water in, or flowing into, the agency; except that the agency shall have no power to intervene or take part in, or to pay the costs or expenses of, actions or controversies between the owners of lands or water rights which do not affect the interests of the agency.
(Stats.1959, c. 788, p. 2783, § 4.3.)

**Library References**

Waters and Water Courses ⟹193, 222.
WESTLAW Topic No. 405.
C.J.S. Waters §§ 241, 257, 316.

## § 84–4.4. Acquisition of works, waters and water rights

Sec. 4.4. The agency shall have the power within or outside the agency to construct, purchase, lease, or otherwise acquire works and to purchase, lease, appropriate or otherwise acquire water and water rights useful or necessary to make use of water for any purposes authorized by this act.
(Stats.1959, c. 788, p. 2784, § 4.4.)

**Library References**

Waters and Water Courses ⟹183(1).
WESTLAW Topic No. 405.
C.J.S. Waters §§ 228, 235.

## § 84–4.5. Operation and maintenance of works and property

Sec. 4.5 The agency shall have the power to operate, repair, improve, maintain, renew, replace and extend all works and property of the agency.
(Stats.1959, c. 788, p. 2784, § 4.5.)

**Library References**

Waters and Water Courses ⟹193.
WESTLAW Topic No. 405.
C.J.S. Waters §§ 241, 257.

## § 84–4.6. Investigations; studies

Sec. 4.6. The agency shall have the power to carry on technical and other necessary investigations, make measurements, collect data, make analyses, studies, and inspections pertaining to water supply, water rights, control of flood and storm waters, and use of water both within and without said agency relating to watercourses or streams flowing in or into said agency.
(Stats.1959, c. 788, p. 2784, § 4.6.)

**Library References**

Administrative Law and Procedure ⟹343.
WESTLAW Topic No. 15A.
C.J.S. Public Administrative Law and Procedure §§ 76, 78.

Sovereign immunity study. Cal.Law Revision Comm. (1963) Vol. 5, p. 119.

## § 84–4.7. Transmission of electric energy

Sec. 4.7. The agency shall have the power to construct its pipes, pipelines, flumes and tunnels and other conduits, including facilities for the transmission of electric energy to the works of the agency, along, under or across any public road, street, alley, avenue, highway or sidewalk, or across any stream of water, watercourse, railway, canal, ditch, or flume which the route of said pipes, pipelines, canals, flumes, tunnels, or other conduits may intersect or cross, except that such works shall be constructed in compliance with any applicable laws and in such manner as to afford security for life and property and the agency shall restore at its own expense any such crossings and intersections to their former state as nearly as may be or to an extent which does not unnecessarily impair their usefulness. Every company, municipality, or district whose right-of-way shall be intersected or crossed by said pipes, pipelines, canals, flumes, tunnels or other conduits shall unite with the agency in forming said intersections and crossings and grant the rights therefor.
(Stats.1959, c. 788, p. 2784, § 4.7.)

### Library References

Sovereign immunity study. Cal.Law Revision Comm. (1963) Vol. 5, p. 94.

## § 84–4.8. Blank

## § 84–4.9. Repealed by Stats.1975, c. 585, p. 1244, § 36

### Law Revision Commission Comment

### 1975 Repeal

Section 4.9 [Water C.App. § 84–4.9] is superseded by Section 1240.330 of the Code of Civil Procedure and Section 861 of the Public Utilities Code.

### Historical and Statutory Notes

The repealed section, added by Stats.1959, c. 788, § 4.9, related to relocation of an improvement or works.

Operative effect of 1975 repealer, see note under § 40–39.

## § 84–4.10. Reimbursement of county for expenses

Sec. 4.10. The agency may reimburse the county for any funds expended by the county in investigations, elections, or other acts incidental to the establishment and purposes of the agency.
(Stats.1959, c. 788, p. 2785, § 4.10.)

## § 84–4.11. Contracts for sale of right to use falling water for power purposes

Sec. 4.11. In connection with the construction and operation of the works of the agency, the agency shall have the power to contract for a term not to exceed 50 years, for the sale of the right to use falling water for power purposes with any public or private entity, engaged in the sale of electric power at retail.
(Stats.1959, c. 788, p. 2785, § 4.11.)

### Library References

Waters and Water Courses ⟹200(1), 201.
WESTLAW Topic No. 405.
C.J.S. Waters §§ 264 et seq., 277 et seq.

## § 84–4.12. Use of water for development of county in which water originates

Sec. 4.12. Nothing contained in this act shall deprive a county in which water originates of any water necessary for the development of such county.
(Stats.1959, c. 788, p. 2785, § 4.12.)

## § 84–4.13. Hydroelectric alternate energy supply sources

Sec. 4.13. The agency may develop hydroelectric alternate energy supply sources under 75 megawatts in accordance with Chapter 3.2 (commencing with Section 4217.10) of Division 5 of Title 1 of the Government Code.
(Added by Stats.1985, c. 314, § 2.)

**Historical and Statutory Notes**

Section 4 of Stats.1985, c. 314, provides:

"Sections 1 and 3 of this act shall not become operative if Senate Bill 245 of the 1985–86 Regular Session [Stats.1985, c. 1054] is enacted and becomes operative."

## § 84–5. Transfer of water or rights to use agency works; charges; contract provisions

Sec. 5. Any water or rights to the use of the works of the agency for the conservation, control or transportation of water may be sold, leased or otherwise transferred by the agency to member units, and the agency may fix and collect rates and charges for such purposes. The agency may transfer such water or the use of agency works to other than member units for use in or outside the agency upon a temporary or short-term basis, upon a finding by the board that such water or works exceed the needs of member units. Each contract for or sale of surplus water or the use of such water facilities shall expressly state that the sale or disposition is subject to the prior right to the use of such water or facilities by or for member units.

(Stats.1959, c. 788, p. 2785, § 5.)

## § 84–5.1. Contracts with member units; purposes

Sec. 5.1. The agency may enter into contracts with any member unit or with any district which becomes a member unit of the agency for any of the following purposes:

(a) The lease, purchase, or other acquisition by the agency of any of the works of such member unit or district.

(b) The construction of works by the agency for the conservation, regulation or transmission of water for the benefit of such member unit or district; or for the furnishing or sale by the agency or the State of California or the United States to such member unit or by such member unit to the agency of water or a water supply for any purpose.

(c) The sale, lease, or other disposition of water, water rights, and water storage facilities or interests therein, by the agency or by such member unit.

(d) The operation of works and the delivery of water by the agency or by such member unit, except that:

(1) The works shall be operated in conformity with the vested rights and appropriations of each of its member units having an interest therein.

(2) There shall be delivered to each member unit all water to which such member unit is entitled under the contract entered into by the agency and such member unit.

(3) There shall not be delivered to any member unit more water than the amount to which such member unit is entitled under the contract entered into by the agency and such member unit, except that the release of water from any reservoir in the amount required to satisfy any vested right shall not constitute a delivery of water, and any amount of water assigned under Section 5.6 by one member unit to another member unit shall be delivered to the latter.

(e) No contract may be entered into between the agency and a member unit which provides for the sale of project water for agricultural purposes, industrial purposes, or for power plant cooling purposes upon any term or condition more favorable than the same term or condition contained in the agricultural water contracts entered into between the agency and member units prior to January 1, 1978.

(Stats.1959, c. 788, p. 2786, § 5.1. Amended by Stats.1978, c. 914, p. 2877, § 2.)

**Library References**

Waters and Water Courses ⟹200(1).
WESTLAW Topic No. 405.
C.J.S. Waters § 264 et seq.

## § 84–5.2. Long-term contracts; sale of surplus water; public hearings

Sec. 5.2. (a) The agency may enter into long-term contracts for the sale of water, for use outside the boundaries of the agency by other than a member unit, if the board of directors determines that the transferred water is surplus to the amount of water available to meet the contractual requirements of member units.

(b)(1) Before the board may enter into a contract pursuant to subdivision (a), it shall hold a public hearing to receive oral and written comments on the transfer proposal.

(2) The board shall provide notice of the hearing by publication in a newspaper of general circulation once a week for two consecutive weeks prior to the hearing, with the last publication being at least seven days before the hearing.

(3) At the time and place fixed for the hearing, or at any time to which the hearing is continued, the board shall consider all written and oral objections to the proposed contract. Upon the conclusion of the hearing the board may abandon or proceed with the proposed contract, unless, prior to the conclusion of the hearing, written protests against the proposed contract signed by a majority in number of registered voters residing within Yuba County are filed with the board, in which event further proceedings relating to the contract must be suspended for not less than six months following the date of the conclusion of the hearing, or the proceeding may be abandoned in the discretion of the board.

(c) A long-term contract for the sale of water pursuant to this section shall not be implemented until the state board, pursuant to Section 386 of the Water Code, finds that the water transfer may be made without injuring any legal user of the water, without unreasonably affecting fish, wildlife, or other instream beneficial use, and without unreasonably affecting the overall economy of the area from which the water is to be transferred.

(Stats.1959, c. 788, p. 2786, § 5.2. Amended by Stats.1993, c. 801 (A.B.1316), § 1.)

**Historical and Statutory Notes**

The Senate Daily Journal for the 1993–94 Regular Session, page 2658, contained the following letter dated 8/16/93 to Assembly Member Richter regarding the intent of A.B. 1316 (Stats. 1993, c. 801):

"As you know, we are the attorneys for Yuba County Water Agency. You have introduced AB 1316 at the request of the Agency. It would amend the provisions of the Yuba County Water Agency Act concerning long-term water transfers.

"The Department of Water Resources has raised the question whether the phrase at page 2 of AB 1316, lines 25–28, which reads, 'if the board of directors determines that the transferred water is surplus to the amount of water available to meet the contractual requirements of member units', could be construed to not authorize the transfer of water within the contractual requirement of a member unit, even if such water were made available for transfer by a water user within the member unit agreeing to forgo use of the water for the duration of the transfer, and the Agency, the member unit and the water user agreed to the terms of the transfer. In the past, member units of the Agency, pursuant to agreements among the Agency, member units and water users, transferred to the Governor's Water Bank water that otherwise would have been delivered to them pursuant to such contractual requirements and that was made available by their water users agreeing to forgo the use of the water by instead pumping groundwater. The Department of Water Resources wants to be sure that the amendments proposed under AB 1316 would not prevent similar transfers from occurring in the future.

"This letter is to confirm the intent of Yuba County Water Agency that AB 1316 would not prevent a member unit or water user within a member unit from transferring, on terms agreed to by the Agency, the member unit and the water user, water that otherwise would be available for their use pursuant to contractual requirements with the Agency, by forgoing its use of that water. We believe that the Yuba County Water Agency Act, as amended by AB 1316, would be read to be consistent with other provisions of the Water Code that include within the definition of 'surplus water', water made available when a water user forgoes its use on terms agreed to by the water supplier and water user. For example, see Water Code Sections 383 and 1745–1745.11.

"We would appreciate you including a copy of this letter in the file for AB 1316, to reflect the author's intent on this issue."

## § 84–5.3. Suspension of delivery of water to delinquent member units

Sec. 5.3. The agency in its discretion may suspend delivery of water conserved by the agency or obtained by or on behalf of the agency or a member unit to any member unit during the period which said member unit is delinquent in its payment for or obligations due in respect to such water under any contract entered into by it with the agency.

(Stats.1959, c. 788, p. 2787, § 5.3.)

### Library References

Waters and Water Courses ⟹203(13).
WESTLAW Topic No. 405.
C.J.S. Waters § 305.

## § 84–5.4. Liability of member units for taxes; contract provisions

Sec. 5.4. The liability of each member unit, as distinguished from the liability of its taxpayers and property therein for taxes levied by the agency for agency purposes, shall be limited to that portion of the total cost for water or water supply or to that portion of the total cost of construction and the operation and maintenance cost of the works acquired or constructed by or on behalf of the agency or member unit which such member unit agrees to bear.

The liability of each member unit shall be set forth fully in a written contract which shall be legally approved by the member unit in accordance with the laws governing such member unit. No contract shall be altered or modified without the consent of the agency and the legal approval of the member unit.

Each contract may provide, among other things:

(a) The total capital obligation which the member unit agrees to bear.

(b) The minimum annual payments which the member unit shall make in amortization of its capital obligation.

(c) The amount or pro rata portion of water which shall be delivered to or held in storage for the member unit.

(d) The basis of allocation of operation and maintenance costs to be borne by the member unit.

(e) The amount or other measure of water supply or water agreed to be acquired by or furnished or sold to such member unit and the cost thereof to such member unit.

Such contracts shall be executed in accordance with the laws governing such districts.

(Stats.1959, c. 788, p. 2787, § 5.4.)

**Library References**

Waters and Water Courses ⟹198.
WESTLAW Topic No. 405.
C.J.S. Waters and Water Courses §§ 229, 262.

## § 84–5.5. Reduction of obligations

Sec. 5.5. (a) In the event of any reduction in the principal of any debt of the agency underwritten by one or more member units, order than by payment thereof, the amounts to be paid to the agency by each member unit in amortization of its remaining portion of such debt shall be reduced proportionately so that the relative obligations of each such member unit shall be unchanged.

(b) In the event of any reduction in the rate of interest being paid on any part of a debt of the agency for which one or more member units are responsible, the amounts to be paid the agency by each such member unit shall be reduced proportionately so that the relative obligation of each such member unit remains unchanged in respect to its obligation to pay any remaining interest.

(c) In determining the amounts which member units shall pay for water due consideration shall be given to revenues to be derived from the sale of electric energy. All main water conduits to member districts' boundaries shall be included in the feasibility report and considered as part of the agency project.

(Stats.1959, c. 788, p. 2787, § 5.5.)

## § 84–5.6. Assignment of rights by member units

Sec. 5.6. Any member unit may reduce its obligations under its contract with the agency by assignment to and acceptance by another member unit of any part of its right to receive water under its contract except that the assignment shall be legally approved, in accordance with the laws governing such member unit, by each member unit which is a party to the assignment. The total of all payments to be made by such member units to the agency shall not be reduced by virtue of the assignment and the assignor member unit may

be required by the agency to guarantee the payments assumed by the assignee member unit.

(Stats.1959, c. 788, p. 2788, § 5.6.)

**Library References**

Waters and Water Courses ⟹189.
WESTLAW Topic No. 405.
C.J.S. Waters § 244 et seq.

## § 84–5.7. Sale or disposal of capital assets; use of proceeds

Sec. 5.7. If any capital asset of the agency is sold or otherwise disposed of, the net proceeds therefrom shall be distributed to the member units, or applied against any liability of the member units to the agency in proportion to the amount contributed by each member unit to the cost of the capital asset. However, if any liability on the part of the agency or its member units for the original cost or any subsequent improvement or refinancing of such capital asset is not completely extinguished at or before the time of the sale or disposal thereof, the agency may apply as much of the proceeds of the sale as are necessary to extinguish the liability. In extinguishing such liability, the proceeds of the sale shall be applied only as the interests and liabilities of the agency and its member units shall appear.

(Stats.1959, c. 788, p. 2788, § 5.7.)

## § 84–6. Cooperation and contracts with United States; reclamation

Sec. 6. The agency shall have the power to co-operate and contract with the United States under the Federal Reclamation Act of June 17, 1902, and all acts amendatory thereof and supplementary thereto or any other act of Congress heretofore or hereafter enacted permitting co-operation or contract for the purposes of construction of works, whether for irrigation, drainage, or flood control, or for the acquisition, purchase, extension, operation and maintenance of such works, or for a water supply for any purposes, or for the assumption as principal or guarantor of indebtedness to the United States, or for carrying out any of the purposes of the agency, and for said purposes the agency shall have, in addition to the powers set forth in this act, all powers, rights and privileges possessed by irrigation districts as set out in Chapter 2 (commencing at Section 23175) of Part 6 of Division 11 of the Water Code, not inconsistent with the provisions of this act.

(Stats.1959, c. 788, p. 2788, § 6.)

**Library References**

Waters and Water Courses ⟹222.
WESTLAW Topic No. 405.
C.J.S. Waters § 316.

## § 84–6.1. United States contract fund; use

Sec. 6.1. All money collected in pursuance of contract with the United States shall be paid into the county treasury to the credit of the agency and

shall be held in a fund to be known as the "United States contract fund" to be used for payments due to the United States under contract.
(Stats.1959, c. 788, p. 2789, § 6.1.)

## § 84–6.2. Cooperation with United States, state, municipalities, districts, etc.; contracts

Sec. 6.2. The agency may co-operate and act in conjunction and contract with the United States, State of California, any municipality, district, public or private corporation, or any person, in the purchase and sale of water, in the acquisition of water or a water supply, in the construction of any works for the controlling of flood or storm waters in the agency, or for the protection of property, watersheds, watercourses, highways and life, or for the purpose of conserving and transporting said waters for beneficial uses and purposes, including recreational uses and the generation of electric energy, and for the use, operation and management and ownership of such works. The agency also may make and perform any agreement with the United States, the State, any county, municipality, district, public or private corporation, or any person for the joint acquisition, disposition, operation or management of any property, works, water or water supply of a kind which might be acquired, disposed of, or operated by the agency.

Any irrigation district, California water district, public utility district, municipal utility district, soil conservation district, county water district, water conservation district, municipality, flood control district, mutual water company and any other district or political subdivision of the State empowered by law to appropriate water and deliver water to users may:

(a) Co-operate, act in conjunction with and enter into contracts with the agency for all the purposes for which the agency is empowered to act.

(b) Carry out the terms of such contracts.
(Stats.1959, c. 788, p. 2789, § 6.2.)

## § 84–6.3. Contracts with state or agency for assumption of indebtedness

Sec. 6.3. The agency shall have the power to contract with the State of California or any agency thereof for the assumption, as principal guarantor, of indebtedness to the State of California or any agency thereof for carrying out any of the purposes of the agency. The power to borrow money and assume such liability shall not be subject to Sections 12 and 13 of this act.
(Added by Stats.1964, 1st Ex.Sess., c. 10, p. 114, § 1.)

## § 84–7. Directors; compensation; powers; quorum

Sec. 7. (a)(1) The board of directors shall consist of seven members. The members of the board of supervisors of the county shall be ex officio members of the board of directors of the agency. Two members of the board of directors shall be elected by the voters in accordance with this section. Each elected

director shall be a registered voter, a resident of the county, and eligible to hold elected office. One elected director shall reside north of the Yuba River and shall be elected by the voters residing north of the Yuba River. The other elected director shall reside south of the Yuba River and shall be elected by voters residing south of the Yuba River.

(2) Notwithstanding paragraph (1), the board of directors shall, by resolution, adjust the boundaries of the geographical areas from which the two directors are elected to create two divisions pursuant to Chapter 8 (commencing with Section 22000) of Division 21 of the Elections Code.

(b) The term of office of the two elected directors shall be four years, except that the initial terms of office shall be staggered with one director, chosen by lot, serving for a term of two years. The two elected directors shall initially be elected at the general election held on November 6, 1990, and shall take office at the first meeting of the board of directors after January 1, 1991. One elected director shall thereafter be elected at each statewide primary election held in an even-numbered year, except that if no candidate receives more than 50 percent of the votes cast for the office at that election, the two candidates receiving the highest number of votes for the office shall be on the ballot at the general election held the following November. The elected directors shall take office at the first meeting of the board of directors after the first day of January following their election.

(c) Directors shall be entitled to receive from the agency the sum of twenty dollars ($20) for each meeting attended, plus actual, necessary and reasonable traveling expenses. The basis for compensation of the directors, and the amount thereof, may be altered only by a five-sevenths vote of the directors. The board of directors may adopt reasonable rules and regulations to carry out its powers and duties. The board of directors shall elect a chairperson and vice chairperson. The chairperson shall preside at all meetings of the board and in case of his or her absence or inability to act, the vice chairperson shall preside. In case of the absence of the chairperson and vice chairperson or their inability to act, the members present shall, by an order entered in the records, select a member to act as temporary chairperson. Any member of the board may administer oaths when necessary in the performance of his or her official duties. A majority of the members of the board shall constitute a quorum for the transaction of business, but no act of the board shall be valid or binding unless a majority of all members concur therein.

(Stats.1959, c. 788, p. 2789, § 7. Amended by Stats.1979, c. 719, p. 2249, § 1; Stats.1989, c. 414, § 1; Stats.1990, c. 405 (A.B.3786), § 1; Stats.1998, c. 435 (A.B. 2543), § 23.)

**Historical and Statutory Notes**

Section 2 of Stats.1989, c. 414, provides:

"The Yuba County Water Agency Advisory Council is hereby abolished."

## § 84–7.1. Repealed by Stats.1971, c. 189, p. 257, § 1

### Historical and Statutory Notes

The repealed section, added by Stats.1959, c. 788, § 7.1, prohibited directors from having an interest in contracts.

## §§ 84–7.2 to 84–7.4. Repealed by Stats.1963, c. 1685, pp. 3309, 3310, §§ 41 to 43

### Historical and Statutory Notes

The repealed sections, added by Stats.1959, c. 788, p. 2790, §§ 7.2 to 7.4, related to liability of directors, officers, agents, or employees.

Operative effect of Stats.1963, c. 1685, p. 3307, see Historical and Statutory Notes under repeal line for Water Code § 8535.

Liability of public employees, see, now, Government Code § 820 et seq.

## § 84–8. County officers and employees as officers and employees of agency; performance of duties

Sec. 8. All officers of the county, and their assistants, deputies, clerks, and employees, shall be ex officio officers, assistants, deputies, clerks and employees respectively of the agency, and shall perform, unless otherwise provided by the board, the same duties for the agency as performed for the county; except that if the county surveyor is a registered civil engineer and is employed to supervise the engineering work of the agency, the board may provide compensation for his services in addition to his salary as county surveyor which shall be payable from the funds of the agency.

(Stats.1959, c. 788, p. 2791, § 8.)

### Library References

Counties ⚷81.
WESTLAW Topic No. 104.
C.J.S. Counties §§ 122, 127.

## § 84–8.1. Employment of additional personnel

Sec. 8.1. The board may employ agents, superintendents, engineers, attorneys, and employees necessary to carry out the provisions of this act.

The board may appoint a secretary and such other officers, agents and employees for the board or agency as in its judgment may be deemed necessary, prescribe their duties and fix their compensation. Such officers, agents and employees so appointed shall hold their respective offices or positions during the pleasure of the board.

(Stats.1959, c. 788, p. 2791, § 8.1.)

## § 84–9. Ordinances, resolutions and other legislative acts; initiative and referendum

Sec. 9. All ordinances, resolutions and other legislative acts of the agency shall be adopted by the board, and certified to, recorded and published in the

same manner, except as herein otherwise expressly provided, as are ordinances, resolutions or other legislative acts of the county.

The initiative and referendum powers are hereby granted to the electors of the agency to be exercised in relation to the enactment or rejection of agency ordinances in accordance with the procedure established by the laws of this State for the exercise of such powers in relation to counties.

(Stats.1959, c. 788, p. 2791, § 9.)

**Cross References**

County initiative and referendum, see Elections Code § 9100 et seq.
County ordinances, see Government Code § 25120 et seq.

## § 84–10. Claims against agency; law governing; preparation; presentation; audit

Sec. 10. Claims for money or damages against the agency are governed by Part 3 (commencing with Section 900) and Part 4 (commencing with Section 940) of Division 3.6 of Title 1 of the Government Code, except as provided therein. Claims not governed thereby or by other statutes or by ordinances or regulations authorized by law and expressly applicable to such claims shall be prepared and presented to the governing body, and all claims shall be audited and paid, in the same manner and with the same effect as are similar claims against the county.

(Added by Stats.1961, c. 2011, p. 4221, § 2. Amended by Stats.1963, c. 1715, p. 3422, § 148.)

**Historical and Statutory Notes**

Former § 84–10, added by Stats.1959, c. 788, p. 2791, § 10, relating to claims against agency, was repealed by Stats.1961, c. 2011, p. 4221, § 1.

Applicability of Stats.1963, c. 1715, p. 3369, see Historical and Statutory Notes under Government Code § 900.

**Library References**

Claims, actions and judgments against public entities and public employees; recommendation. Cal.Law Revision Comm. (1963) Vol. 4, p. 1007 et seq.

## § 84–11. Property

Sec. 11. The legal title to all property acquired under the provisions of this act shall be in the agency and shall be held for the uses and purposes of this act. The board may hold, use, acquire, manage, occupy and possess such property and, after declaring by resolution entered in the minutes that any real or personal property held by the agency is no longer necessary, may sell or otherwise dispose of such property, or lease the same, in the manner provided by law for the disposition and sale of property by counties.

(Stats.1959, c. 788, p. 2791, § 11.)

**Cross References**

Sale of county property, see Government Code §§ 23004, 25354 et seq.

## §§ 84–12, 84–12.1. Repealed by Stats.1984, c. 1128, §§ 144, 145

### Historical and Statutory Notes

Former § 84–12, added by Stats.1959, c. 788, § 12, related to requirements for contracts.

Former § 84–12.1, added by Stats.1966, 1st Ex.Sess., c. 7, § 1, related to rejection of bids.

See, now, Pub. Con. C. § 21351.

## § 84–13. Debt limit

Sec. 13. The agency shall not incur any indebtedness or liability exceeding in any year the income and revenue provided for such year, and any indebtedness or liability incurred in violation of this section shall be absolutely void and unenforceable. This section shall have no application to debts or liabilities incurred for feasibility reports nor to indebtedness incurred pursuant to the provisions of this act authorizing the issuance of bonds, the execution of contracts with the United States, nor the incurring of any indebtedness or liability authorized by a vote of the electors of the agency at an election held for such purpose. This section shall have no application to debts or liabilities incurred for the employment of officers, agents, and employees pursuant to Section 8.1.

(Stats.1959, c. 788, p. 2792, § 13. Amended by Stats.1964, 1st Ex.Sess., c. 9, p. 113, § 1.)

## § 84–13.1. Bonded indebtedness; limitation

Sec. 13.1. The agency shall have no power to incur any bonded indebtedness except as provided in Section 16.

(Stats.1959, c. 788, p. 2792, § 13.1.)

## § 84–14. Ad valorem tax; purposes; limitation

Sec. 14. If from any cause, the revenues of the agency shall be, or in the judgment of the board are likely to be, inadequate to pay the expenses, costs, liabilities and indebtedness of the agency, the board shall have the power in any year to levy an ad valorem tax upon all taxable property in the agency to pay the costs and expenses of the agency to carry out the provisions of this act, except that the aggregate taxes levied for any one fiscal year shall not exceed ten cents ($0.10) on each one hundred dollars ($100) of the assessed valuation of the taxable property in the agency.

(Stats.1959, c. 788, p. 2792, § 14.)

## § 84–14.1. Assessments; collection of taxes

Sec. 14.1. The board shall avail itself of the assessments made by the assessors of the counties within which the agency or any parts thereof are situated, and of the assessments made by the State Board of Equalization for those counties, and shall take such assessments as a basis for agency taxation and have its taxes collected by the county officials if the board declares its election so to do by resolution or ordinance and files a certified copy of the

resolution or ordinance on or before the first day of August with the auditors of the counties in which the agency or any parts thereof are situated. Thereafter, each year and until otherwise provided by the board, all assessments shall be made for the agency by the State Board of Equalization and the county assessors, and all taxes shall be collected for the agency by the tax collectors of the counties in which the agency or any part thereof is situated.
(Stats.1959, c. 788, p. 2793, § 14.1.)

**Cross References**

Collection of county taxes, see Revenue and Taxation Code § 2501 et seq.

### § 84–14.2. Statement of total value of property within agency

Sec. 14.2. The county auditor shall on or before the third Monday in August of each year, transmit to the board a statement in writing showing the total value of all property within the agency, ascertained from the assessments referred to in Section 14.1 as equalized.
(Stats.1959, c. 788, p. 2793, § 14.2.)

### § 84–14.3. Tax rate; levy

Sec. 14.3. The board shall on or before the first weekday in September, or if such weekday falls upon a holiday, then on the first business day thereafter, subject to the provisions of Section 14, fix the rate of taxes, designating the number of cents upon each hundred dollars, using as a basis the value of property transmitted to the board by the county auditors, which rate of taxation, subject to the limitations of Section 14, shall be sufficient to raise the amount previously fixed by the board. These acts by the board shall constitute a valid assessment of the property and a valid levy of the taxes so fixed.
(Stats.1959, c. 788, p. 2793, § 14.3.)

### § 84–14.4. Statement of tax rate; transmittal to county auditors

Sec. 14.4. The board shall immediately after fixing the rate of taxes as above provided transmit to the county auditors of the counties in which the agency or any portion thereof is situated a statement of the rate of taxes fixed by the board.
(Stats.1959, c. 788, p. 2793, § 14.4.)

### § 84–14.5. Time and manner of collection of taxes; payment to treasurer of principal county

Sec. 14.5. The agency's taxes so levied shall be collected at the same time and in the same manner as county taxes. When collected, the net amount, ascertained as provided in this act, shall be paid to the treasurer of the principal county under the general requirements and penalties provided by law for the settlement of other taxes.
(Stats.1959, c. 788, p. 2793, § 14.5.)

**Cross References**

Collection of county taxes, see Revenue and Taxation Code § 2501 et seq.

## § 84–14.6. Apportionment of money paid for redemption from tax sales

Sec. 14.6. Whenever any real property situated in the agency has been sold for taxes due to the agency and has been redeemed, the money paid for redemption shall be apportioned and paid to the agency by the county auditor receiving it in accordance with the provisions of Chapter 1c (commencing at Section 4656) of Part 8 of Division 1 of the Revenue and Taxation Code.
(Stats.1959, c. 788, p. 2793, § 14.6.)

## § 84–14.7. Lien of tax; enforcement of collection

Sec. 14.7. All taxes levied under this act are a lien on the property on which they are levied. Unless the board has by ordinance otherwise provided, the enforcement of the collection of such taxes shall be in the same manner and by the same means provided by law for the enforcement for county taxes, all the provisions of law relating to the enforcement of the latter being made a part of this act so far as applicable.
(Stats.1959, c. 788, p. 2793, § 14.7.)

## § 84–15. Bonds; resolution; special bond election; liability of member units

Sec. 15. (a) Whenever the board determines that a bonded indebtedness should be incurred to pay the cost of any work of improvement for the benefit of any member unit, as determined in an agreement between the agency and the member unit, it may determine and declare by resolution the amount of bonds necessary to be issued in each member unit affected for such work of improvement. The board shall cause a copy of the resolution duly certified by the clerk to be filed with the governing board of such member unit.

(b) After such resolution is filed, the governing board of such member unit may call a special bond election to be held and conducted in the member unit in accordance with the laws applicable to the holding of such elections in such member units; but the adoption or filing of such resolution shall not be a condition precedent to the calling of special bond elections by member units.

(c) No member unit nor the property therein nor other land within the agency shall be liable for the share of bonded indebtedness of any other member unit for which bonds are issued under this act, nor shall any moneys derived from taxation or assessment in any of the several member units be used in payment of principal or interest or otherwise of the share of bonded indebtedness chargeable to any other member unit.
(Stats.1959, c. 788, p. 2794, § 15.)

## § 84–16. Bonds; issuance under Revenue Bond Law of 1941

Sec. 16. If the board by resolution determines that a bonded indebtedness to pay for the acquisition or construction of any works for any purposes of the

agency or for refunding any outstanding bonds should be incurred and can be repaid and liquidated as to both principal and interest from revenues designated by the board, the agency is authorized and shall have the power to define such works as an "enterprise" and to issue revenue bonds all in the manner and as provided in the Revenue Bond Law of 1941 as amended, and for such purpose the agency shall be considered a "local agency," as defined by Section 54307 of the Government Code; provided, however, that notwithstanding the provisions of Section 54310 of the Government Code, the board shall have the power, subject to the limitations of Section 4.1 hereof, to borrow money and issue revenue bonds for, and to define "enterprise" to include systems, plants, works or undertakings for the generation, production, transmission and sale of hydroelectric energy as authorized in this act; and provided, further, that notwithstanding the provisions of Section 54400 of the Government Code, the board may determine and provide, in any resolution for the issuance of revenue bonds, for maturity dates of the revenue bonds not exceeding 50 years from their date of issuance.

(Stats.1959, c. 788, p. 2794, § 16. Amended by Stats.1961, c. 33, p. 940, § 1, eff. March 24, 1961.)

## § 84–17. Revenue bonds as legal investments

Sec. 17. All revenue bonds issued by the agency may be certified as legal investments pursuant to the Districts Securities Law (Chapter 1 (commencing with Section 20000) of Division 10 of the Water Code), in the manner and to the extent provided in Sections 54433 and 54434 of the Government Code; provided, however, that Sections 20003 and 20004 of the Water Code shall not be applicable to the agency.

(Stats.1959, c. 788, p. 2794, § 17. Amended by Stats.1971, c. 214, p. 326, § 203.)

## § 84–18. Improvement; conformity to report, plans and specifications; additional bonds; defeat of bond proposal; waiting period

Sec. 18. Any improvement for which bonds are voted under the provisions of this act, shall be made in conformity with the report, plans, specifications and maps theretofore adopted unless the doing of any of such work described in said report shall be prohibited by law, or be rendered contrary to the best interest of the agency by some change of conditions in relation thereto, in which event the board may order necessary changes made in such proposed work of improvement, and may cause any plans and specifications to be made and adopted therefor.

Whenever bonds have been authorized and the proceeds of the sale thereof have been expended as authorized in this act, and the board shall by resolution determine that additional bonds shall be issued for carrying out any of the purposes of this act, the board may again proceed as provided in this act, and submit to the qualified voters the question of issuing additional bonds in the same manner and with like procedures as provided in this act, and the above provisions of this act for the issuing and sale of such bonds, and for the

expenditure of the proceeds thereof, shall be deemed to apply to such issue of additional bonds.

Should a proposition for issuing bonds submitted at any election under this act fail to receive the requisite number of votes of the qualified electors voting at such election to incur the indebtedness the board shall not call to order, within six months after such election, another election for incurring indebtedness and issuing bonds under this act for the same purpose.

The repeal or amendment of this act shall not in any way affect or release any of the property in the agency or any member unit thereof from the obligations of any outstanding bonds or indebtedness until all such bonds and outstanding indebtedness have been fully paid and discharged.
(Stats.1959, c. 788, p. 2795, § 18.)

## § 84–19. Surplus moneys; disposition; use

Sec. 19. After all of the revenue bonds shall have been fully paid and discharged, or provision for their payment and discharge irrevocably made, any surplus moneys in the construction fund shall, subject to the limitations and restrictions in any indenture providing for the issuance of the revenue bonds, become and be the property of the agency, and be used by the agency for any lawful purpose.
(Stats.1959, c. 788, p. 2795, § 19.)

## § 84–20. Maintenance and operation costs; apportionments from revenue; use of surplus

Sec. 20. If the interest and principal of the revenue bonds and all charges to protect or secure them are paid when due, an amount for the necessary and reasonable maintenance and operation costs of the enterprise, which costs include the reasonable expenses of management, repair and other expenses necessary to maintain and preserve the enterprise in good repair and working order, may be apportioned from the revenues, and subject to any limiting covenants in the resolution providing for the issuance of bonds, the remaining surplus may be used for any lawful purpose of the agency, which without limiting the generality of the foregoing shall include the right and authority to expend any or all of such surplus as contributions in aid of necessary extensions of water storage and distribution facilities of the agency and the purchase or obtaining of additional water supplies.
(Stats.1959, c. 788, p. 2795, § 20.)

## § 84–21. Action to test validity of bonds or contract

Sec. 21. An action to determine the validity of bonds or a contract may be brought pursuant to Chapter 9 (commencing with Section 860) of Title 10 of Part 2 of the Code of Civil Procedure. In any such action all findings of fact or conclusions of the board upon all matters shall be conclusive unless the action was instituted within six months after the finding or conclusion was made.
(Stats.1959, c. 788, p. 2796, § 21. Amended by Stats.1961, c. 1491, p. 3337, § 1.)

**Cross References**

Pleading, see Code of Civil Procedure § 420 et seq.
Publication in newspapers, see Government Code § 6000 et seq.
Summons, service by publication, see Code of Civil Procedure § 415.50.

**Library References**

Declaratory Judgment ⇐211.
WESTLAW Topic No. 118A.
C.J.S. Declaratory Judgments § 78.

## § 84–22. Effect upon municipalities, districts or other agencies

Sec. 22. Neither the establishment of the agency nor any provision of this act shall affect, restrict nor supersede the existence, property, right, or power of any municipality, public district, or public agency now or hereafter established in or partially within the limits of the agency for the purpose of flood control, reclamation, conservation, storage, distribution, sale, use, or development of water. The Legislature, because of conditions special to the county, hereby expressly declares its intent to permit within the limits of the Yuba County Water Agency, the existence of more than one district, municipality or combination thereof, having similar powers over similar territory in regard to flood control, reclamation and water conservation, storage, distribution, sale, use or development.
(Stats.1959, c. 788, p. 2796, § 22.)

## § 84–23. Vested rights

Sec. 23. Neither the formation of the agency nor this act shall impair the vested right of any person, association, corporation, municipality or district in or to any water or the use thereof.
(Stats.1959, c. 788, p. 2797, § 23.)

## § 84–24. Action to test validity of existence of agency

Sec. 24. The agency, in order to determine the legality of its existence, may institute a proceeding therefor in the Superior Court of this State, in and for the County of Yuba, by filing with the clerk of said county a complaint setting forth the name of the agency, its exterior boundaries, the date of its organization and a prayer that it be adjudged a legal agency formed under this act. The summons in such proceeding shall be served by publishing a copy thereof once a week for four weeks in a newspaper of general circulation published in the county. The State of California shall be a defendant in such action, and consent therefor is given. Service of summons therein shall be made on the Attorney General. The Attorney General shall appear in such action on behalf of the State in the same manner as with appearances in civil actions. Within thirty (30) days after proof of publication of said summons the State, any property owner or resident in said agency, or any person interested may appear as a defendant in said action by serving and filing an answer to said complaint, in which case said answer shall set forth the facts relied upon to show the invalidity of the agency and shall be served upon the district attorney before

being filed in such proceeding. Such proceeding is hereby declared to be a proceeding in rem and the final judgment rendered therein shall be conclusive against all persons whomsoever, including the agency and the State of California.

(Stats.1959, c. 788, p. 2797, § 24.)

**Cross References**

Publication in newspapers, see Government Code § 6000 et seq.
Summons, service by publication, see Code of Civil Procedure § 415.50.

**Library References**

Declaratory Judgment ⇐204.
WESTLAW Topic No. 118A.
C.J.S. Declaratory Judgments § 88.

## § 84–25. Dissolution

Sec. 25. The agency may be dissolved in the manner provided for the dissolution of districts by Chapter 4 (commencing at Section 58950) of Division 1 of Title 6 of the Government Code, and the agency shall be considered a district within the meaning of all of the provisions of said chapter; provided, however, that if within 90 days after the effective date of this act, a petition is filed with the Board of Supervisors of Yuba County, the agency may be dissolved in the following manner. Upon the filing of the petition with the board signed by qualified electors of Yuba County equal in number to 10 percent of all the votes cast in the county for all candidates for Governor at the last preceding general election at which a Governor was elected, the board shall submit the question of dissolution of the agency to the agency electors. The question of dissolution shall be submitted at a special election held for that purpose not later than the ninetieth day after filing of the petition with the secretary of the board.

If a majority of the votes favor dissolution, the board shall by resolution dissolve the agency. The board shall file a certified copy of the resolution with the Secretary of State and for record in the office of the county recorder. Thereupon the agency is dissolved for all purposes.

(Stats.1959, c. 788, p. 2797, § 25.)

## § 84–26. Legislative findings and declaration

Sec. 26. The Legislature hereby finds that water problems in the County of Yuba require countywide water conservation, flood control and development of water resources; that all land within the county will be benefited thereby; that the solution of these problems lies within and is peculiar to the area to be included in the Yuba County Water Agency; that the county for many years has made investigations and engineering surveys of the county's water resources by private, public and United States engineers; that county water districts, municipalities, irrigation districts and reclamation districts now exist within portions of the county, have acquired property and works, developed a limited water supply, and have incurred indebtedness, but have been and are unable alone to

economically develop an adequate water supply and control the floods of said county, and for such reason it is necessary to have a political entity at least coextensive with the geographical limits of the entire county. It is therefore hereby declared that a general law cannot be made applicable to said county, and that the enactment of this special law is necessary for the conservation, development, control and use of said water for the public good and for the protection of life and property therein.

(Stats.1959, c. 788, p. 2798, § 26.)

## § 84–27. Partial invalidity

Sec. 27. If any provision of this act is declared unconstitutional or invalid, for any reason, the remainder of the act shall not thereby be invalidated, but shall remain in full force and effect.

(Stats.1959, c. 788, p. 2798, § 27.)

### Library References

Statutes ⟹64(2).
WESTLAW Topic No. 361.
C.J.S. Statutes § 96 et seq.

## § 84–28. Short title

Sec. 28. This act may be designated and referred to as "The Yuba County Water Agency Act," and any reference thereto by such designation shall be sufficient for all purposes.

(Stats.1959, c. 788, p. 2798, § 28.)

# Appendix B

# Public Involvement Process

*This page left blank intentionally.*

# Attachment B.1

# Public Notice for YCWA Board Meeting to Adopt a Resolution of Intent to Update the GMP

*This page left blank intentionally.*

# APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901
(530) 741-2345

## Affidavit of Publication

(2015.5 C.C.P)

STATE OF CALIFORNIA,

Counties of Yuba and Sutter

**Yuba County Water Agency**

**Public Notice**

**I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No. CV PT99-0819 that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:**

**October 12 & 19, 2010**

I declare under penalty of perjury
that the foregoing is true and correct.
Executed at Marysville, California

**October 20, 2010**

Date: _____

Kelee Smith

(Signature)

This space is for the County Clerk's filing stamp.

OCT 22 2010

PROOF OF PUBLICATION

**Public Notice**

The Yuba County Water Agency (YCWA) is a public agency charged with developing and promoting the beneficial use and regulation of the water resources of Yuba County. YCWA will hold a public hearing on Tuesday, October 26, 2010 at 8:30 am, in the Yuba County Government Center, Supervisors Chambers, 915 8th Street, Marysville, California. The purpose of the hearing will be to receive public comments on the Agency's proposed adoption of a resolution of intent to prepare an update of the Groundwater Management Plan (GMP) previously adopted in March 2005. Members of the public may submit oral or written comments on this matter at that time, or they may submit written comments before the public hearing to the Agency at 1220 F Street, Marysville, California 95901-4740.

The proposed update would be an evaluation of the actions and objectives of the 2005 GMP to determine how well they are meeting the overall goal of the plan and will update the GMP to reflect changes in groundwater management since the current plan's adoption. A five year evaluation of the entire plan is required by the current GMP.

Signed: Jeanene Upton
Assistant Secretary

October 12 & 19, 2010 Ad #00107572

*This page left blank intentionally.*

# Attachment B.2

# YCWA Board Resolution of Intent to Draft a GMP Update

*This page left blank intentionally.*

**RESOLUTION NO. 2010-16**
**OF THE BOARD OF DIRECTORS OF THE**
**YUBA COUNTY WATER AGENCY OF INTENTION TO**
**PREPARE AN UPDATED GROUNDWATER MANAGEMENT PLAN PURSUANT TO**
**WATER CODE SECTION 10750, ET SEQ. AND**
**SUPERSEDING RESOULUTION NO. 2010-12**

WHEREAS, Assembly Bill 3030, which took effect on January 1, 1993, authorizes a local agency whose service area includes a groundwater basin that is not subject to groundwater management pursuant to other provisions of law or court decision, to adopt and implement a groundwater management plan; and

WHEREAS, the Yuba County Water Agency ("Agency") is authorized to adopt a groundwater management plan pursuant to the provision of AB 3030; and

WHEREAS, the Agency adopted a groundwater management plan in March 2005 that is in accordance with Assembly Bill 3030; and

WHEREAS, the Agency has committed to a five-year evaluation interval of its groundwater management plan; and

WHEREAS, updating the groundwater management plan is in furtherance of and consistent with the Agency's goals and objectives; and

WHEREAS, Water Code section 10753.2 requires that, before preparing a groundwater management plan, a local agency must first hold a public hearing to consider whether to adopt a resolution of intention to prepare a groundwater management plan; and

WHEREAS, following publication of notice as required by law, the Agency held a public hearing on August 10, 2010 to receive public comment on whether or not it should adopt a resolution of intention to prepare an updated groundwater management plan; and

WHEREAS, after considering the public comment and other information presented at the hearing, the Board of Directors of the agency determines that is in the best interest of the Agency that it prepare an updated groundwater management plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Agency as follows.

1. The foregoing recitals are true and are incorporated by reference.
2. The Agency hereby declares its intention to prepare an updated groundwater management plan pursuant to Water Code section 10750, et seq.
3. The General Manger of the Agency or his designee is hereby authorized and directed to establish working groups including other public and nonpublic water purveyors that depend upon the same groundwater basin that serves the Agency's service area, to assist in coordinating the preparation of the Agency's updated groundwater management plan.
4. The General Manager or his designee is further directed to take additional action necessary and appropriate to implement this resolution.
5. This resolution supersedes Resolution No. 2010-12 and shall take effect immediately.

*This page left blank intentionally.*

# Attachment B.3

# Publication of the YCWA Board Resolution of Intent to Draft a GMP Update

*This page left blank intentionally.*

# APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901
(530) 741-2345

## Affidavit of Publication

(2015.5 C.C.P)

NOV 4 2010

## STATE OF CALIFORNIA,

## Counties of Yuba and Sutter

**Yuba County Water Agency**

**Resolution No. 2010-16**

**I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951. No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No. CV PT99-0819 that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:**

**November 2, 2010**

I declare under penalty of perjury
that the foregoing is true and correct.
Executed at Marysville, California

**November 2, 2010**

Date: _____

Kelli Smith

(Signature)

This space is for the County Clerk's filing stamp

**RESOLUTION NO. 2010-16**
**OF THE BOARD OF DIRECTORS OF THE YUBA COUNTY WATER AGENCY OF INTENTION TO PREPARE AN UPDATED GROUNDWATER MANAGEMENT PLAN PURSUANT TO WATER CODE SECTION 10750, ET SEQ. AND SUPERSEDING RESOULUTION NO. 2010-12**

WHEREAS, Assembly Bill 3030, which took effect on January 1, 1993, authorizes a local agency whose service area includes a groundwater basin that is not subject to groundwater management pursuant to other provisions of law or court decision, to adopt and implement a groundwater management plan; and

WHEREAS, the Yuba County Water Agency ("Agency") is authorized to adopt a groundwater management plan pursuant to the provision of AB 3030; and

WHEREAS, the Agency adopted a groundwater management plan in March 2005 that is in accordance with Assembly Bill 3030; and

WHEREAS, the Agency has committed to a five-year evaluation interval of its groundwater management plan; and

WHEREAS, updating the groundwater management plan is in furtherance of and consistent with the Agency's goals and objectives; and

WHEREAS, Water Code section 10753.2 requires that, before preparing a groundwater management plan, a local agency must first hold a public hearing to consider whether to adopt a resolution of intention to prepare a groundwater management plan; and

WHEREAS, following publication of notice as required by law, the Agency held a public hearing on August 10, 2010 to receive public comment on whether or not it should adopt a resolution of intention to prepare an updated groundwater management plan; and

WHEREAS, after considering the public comment and other information presented at the hearing, the Board of Directors of the agency determines that is in the best interest of the Agency that it prepare an updated groundwater management plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Agency as follows.

1. The foregoing recitals are true and are incorporated by reference.
2. The Agency hereby declares its intention to prepare an updated groundwater management plan pursuant to Water Code section 10750, et seq.
3. The General Manger of the Agency or his designee is hereby authorized and directed to establish working groups including other public and nonpublic water purveyors that depend upon the same groundwater basin that serves the Agency's service area, to assist in coordinating the preparation of the Agency's updated groundwater management plan.
4. The General Manager or his designee is further directed to take additional action necessary and appropriate to implement this resolution.
5. This resolution supersedes Resolution No. 2010-12 and shall take effect immediately.

The foregoing resolution was duly passed and adopted by the Board of Directors of the Agency at a meeting thereof held on October 26, 2010 by the following roll call vote:

AYES: Directors Abe, Griego, Mick, Nicoletti, Stocker and Vasquez
NOES: None
ABSTAIN: None
ABSENT: Director Belza

By: John Nicoletti for
Tib Belza, Chairman

ATTEST: Jeanene Upton
Assistant Secretary

CERTIFICATION

I hereby certify that I am the duly appointed Assistant Secretary of the Yuba County Water Agency and that the foregoing resolution was duly and regularly adopted by the Board by the Board of Directors at a meeting thereof held on October 26, 2010.

By: Jeanene Upton
Assistant Secretary

November 2, 2010 Ad #00108883

*This page left blank intentionally.*

# Attachment B.4

# Letter Mailed to the Water Advisory Committee in Notice of the First Public Meeting

*This page left blank intentionally.*

Flood Control • Water Supply • Fishery Enhancement • Recreation • Hydro Electric Generation

**Announcement to:**

Beale Air Force Base
Browns Valley Irrigation District
Butte County Water and Resource Conservation
Camptonville Community Services District
California Department of Water Resources
Dry Creek Mutual Water Company
District 10 Landowners c/o Don Schrader
Linda County Water District
Olivehurst Public Utility District
Ramirez Water District
Reclamation District No. 784
Reclamation District No. 2103
River Highland Community Services District
Sutter County Water Resources Division
Yuba County Resource Conservation District
Yuba County Agricultural Commissioner
Brophy Water District
Camp Far West Irrigation District
California Water Service
City of Wheatland
City of Marysville
Cordua Irrigation District
Hallwood Irrigation Company
Marysville Levee Commission
Plumas Mutual Water District
Reclamation District No. 10
Reclamation District No. 817
South Yuba Water District
Wheatland Water District
Yuba County Water District
Yuba County Planning Division

## Yuba County Water Agency
## Groundwater Management Plan Update
## Public Meeting

The Yuba County Water Agency encourages your participation in a public meeting on the impending update to YCWA's Groundwater Management Plan. Participants will learn more about Yuba County's groundwater basins, receive an overview of the current Groundwater Management Plan, and get details on the purpose, schedule, and stakeholder involvement opportunities for the Plan Update. The meeting will be held at the YCWA offices:

**DATE: August 19, 2010**

**TIME: 9:00 a.m.**

**PLACE: 1220 F Street, Marysville**

We hope to see you there. For more information on YCWA water planning and management, please contact Scott Matyac at 530.741.6278 or smatyac@ycwa.com or visit our website at www.ycwa.com

1220 F Street • Marysville, CA 95901-4740 • 530.741.6278 • Fax 530.741.6541
www.ycwa.com

*This page left blank intentionally.*

# Attachment B.5

# Appeal Democrat Advertisement for the First Public Meeting

*This page left blank intentionally.*

lling, the
tared her
lly: "Have

Margolin did not object to the rates in her Sacramento testimony this February. But in the

significant for those individuals," she said. "And for that, I personally feel very, very sorry."

# illions
# sal deal

ation's No. 2 cable company, returned 67 percent o shareholders, and New ork's Cablevision eturned 57 percent over he last year, according to loomberg News. Comcast rails with 26 percent. The eturns include reinvested lividends.

On a positive note, Comcast has outperformed ompetitors Verizon Communications Inc., which eturned 8.9 percent to hareholders, and AT&T, 0.7 percent over the same eriod.


**YUBA COUNTY WATER AGENCY**
**GROUNDWATER MANAGEMENT PLAN MEETING NOTICE**

Yuba County Water Agency is preparing to update its groundwater management plan originally adopted in 2005. YCWA encourages individuals interested in the update process to attend this meeting.

**WHEN:** August 19, 2010
**TIME:** 9:00 a.m.
**PLACE:** 1220 F Street, Marysville

For more information on YCWA or about our groundwater management planning efforts, contact *Scott Matyac*
at **530.741.6278 x 117**
or ***smatyac@ycwa.com***
or visit our website at ***www.ycwa.com***

**IRA Rollover**

***Need Help?***

Call for a NO OBLIGATION Retirement Plan evaluation today

RYAN WEALTH MANAGEMENT

*This page left blank intentionally.*

# Attachment B.6

# YCWA Web Page Announcement for First Public

*This page left blank intentionally.*

Yuba County Water Agency :: Groundwater Management Plan Update

Page 1 of 1

Home | Relicensing | About | Contact | Meetings and Minutes | Employment | Links

## Groundwater Management Plan Update

The Yuba County Water Agency encourages those interested in groundwater management to attend a public meeting on the update process for YCWA's Groundwater Management Plan. Participants will learn more about Yuba County's groundwater basins, receive an overview of the current Groundwater Management Plan, and get details on the purpose, schedule, and stakeholder involvement opportunities for the Plan Update. The meeting will be held at the YCWA offices:

DATE: August 19, 2010
TIME: 9:00 a.m.
PLACE: 1220 F Street, Marysville

We hope to see you there. For more information on YCWA water planning and management, please contact Scott Matyac at 530.741.6278 or smatyac@ycwa.com or visit our website at www.ycwa.com.

Flood Control | Water Supply | Fishery Enhancement | Recreation | Hydroelectric Generation

http://www.ycwa.com/projects/detail/12

*This page left blank intentionally.*

# Attachment B.7

# Cover Letter Mailed with Hard Copies of the Public Review Draft

*This page left blank intentionally.*

Flood Control · Water Supply · Fishery Enhancement · Recreation · Hydro Electric Generation

November 12, 2010

Beale Air Force Base
Browns Valley Irrigation District
Butte County Water and Resource Conservation
Camptonville Community Services District
California Department of Water Resources
Dry Creek Mutual Water Company
District 10 Landowners c/o Don Schrader
Linda County Water District
Olivehurst Public Utility District
Ramirez Water District
Reclamation District No. 784
Reclamation District No. 2103
River Highland Community Services District
Sutter County Water Resources Division
Yuba County Resource Conservation District
Yuba County CDSA
Brophy Water District
Camp Far West Irrigation District
California Water Service
City of Wheatland
City of Marysville
Cordua Irrigation District
Hallwood Irrigation Company
Marysville Levee Commission
Plumas Mutual Water District
Reclamation District No. 10
Reclamation District No. 817
South Yuba Water District
Wheatland Water District
Yuba County Planning Division
Yuba County Agricultural Commissioner

Enclosed is the Public Review Draft of the Yuba County Water Agency (YCWA) Groundwater Management Plan (GMP). YCWA is inviting the public to review the GMP and provide comments by November 26, 2010. Comments can be provided in one of two ways; (1) on the attached comment form or (2) directly in the Word® document. **If you choose to make edits in the Word® document please be sure that the Track Changes feature is turned on.**

YCWA will host a public meeting on November 18, 2010 at 9:00 a.m. at the **Yuba County Government Center, Conference Room #2 at 915 8th Street in Marysville** to give members of the public an opportunity to learn about the development and contents of the proposed GMP.

After the close of the public review period, YCWA will incorporate comments and suggestions into the Final Draft GMP. The Final Draft GMP will be presented for adoption to the Yuba County Water Agency Board of Directors on December 14, 2010.

We look forward to receiving your comments and suggestions. Please contact me at 530-741-6278 x 117 or smatyac@ycwa.com if you have any questions or need further information.

Scott Matyac
Water Resources Manager
Yuba County Water Agency

1220 F Street · Marysville, CA 95901-4740 · 530.741.6278 · Fax: 530.741.6541
www.ycwa.com

*This page left blank intentionally.*

# Attachment B.8

# Appeal Democrat Advertisement for the Second Public Meeting

*This page left blank intentionally.*

# Yuba County Water Agency Groundwater Management Plan Meeting Notice

Yuba County Water Agency is releasing a public draft of their Groundwater Management Plan on November 12, 2010. A copy of the public draft Groundwater Management Plan will be available for review at YCWA's office located at 1220 F Street, in Marysville from 8:00 am until 5:00 pm, Monday through Friday, between November 12 and November 26, at which time the period for public comment will be closed. YCWA will be making a presentation about the public draft Groundwater Management Plan at the Yuba County Government Center in Conference room #2 at 9:00 am on November 18, 2010. YCWA encourages individuals interested in the Groundwater Management Plan process to attend this meeting. The Yuba County Government Center is located at 915 8th Street in Marysville.

For more information about YCWA or about our groundwater management planning efforts, or to receive a digital copy of the public draft GMP, contact Scott Matyac at 530.741.6278 x117 or smatyac@ycwa.com or visit our website at www.ycwa.com

*This page left blank intentionally.*

# Attachment B.9

# YCWA Web Page Announcement for Second Public

*This page left blank intentionally.*

Yuba County Water Agency :: Groundwater Management Plan Update Page 1 of 1

Home | Relicensing | About | Contact | Meetings and Minutes | Employment | Links

## Groundwater Management Plan Update

YUBA COUNTY WATER AGENCY GROUNDWATER MANAGEMENT PLAN NOTICE

Yuba County Water Agency is releasing a public draft of their Groundwater Management Plan on November 12, 2010. A copy of the public draft Groundwater Management Plan will be available for review at YCWA's office from 8:00 am until 5:00 pm, Monday through Friday, between November 12 and November 26, at which time the period for public comment will be closed. YCWA will be making a presentation about the public draft Groundwater Management Plan at their offices at 9:00 am on November 18, 2010. YCWA encourages individuals interested in the Groundwater Management Plan process to attend this meeting. YCWA's office is located at 1220 F Street in Marysville.

For more information about YCWA or about our groundwater management planning efforts, or to receive a digital copy of the public draft GMP, contact Scott Matyac at 530.741.6278 x117 or smatyac@ycwa.com, or visit our website at www.ycwa.com

Flood Control | Water Supply | Fishery Enhancement | Recreation | Hydroelectric Generation

http://www.ycwa.com/projects/detail/12

*This page left blank intentionally.*

# Attachment B.10

# Public Notice for YCWA Board Meeting to Adopt the Updated GMP

*This page left blank intentionally.*

# APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901
(530) 741-2345

This space is for the County Clerk's filing stamp.

## Affidavit of Publication

(2015.5 C.C.P)

## STATE OF CALIFORNIA,

## Counties of Yuba and Sutter

**Yuba County Water Agency**

**Hearing Notice**

**I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No. CV PT99-0819 that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:**

**December 1 & 7, 2010**

I declare under penalty of perjury
that the foregoing is true and correct.
Executed at Marysville, California

**December 10, 2010**

Date: _____

Kelli Smith

(Signature)

## PROOF OF PUBLICATION

**Yuba County Water Agency**
**Notice of Public Hearing Concerning Adoption of a Groundwater Management Plan**

The Yuba County Water Agency (Agency) will hold a public hearing on Tuesday, December 14, 2010, commencing at 8:30 am at the Yuba County Government Center, Supervisor's Chambers at 915 8th Street, Marysville, CA. The purpose of the public hearing will be to receive public comments on whether or not the Agency should adopt a groundwater management plan (GMP), pursuant to California Water Code division 6, part 2.75 (Assembly Bill No. 3030).

On February 22, 2005, the Agency Board of directors adopted an ordinance (Ordinance No. 9) adopting a GMP that had been developed in participation with a Water Advisory Committee, comprised of local water purveyors, reclamation districts, Yuba County agencies, the Yuba County Resource Conservation District, and Beale Air Force Base. That GMP included a provision that it should be updated after five years.

On October 26, 2010, the Agency Board of Directors approved a resolution of intent (Resolution No. 2010-16) that formally directs the Agency to proceed with the development of a GMP. The Agency has held public meetings and solicited comments and input on the draft GMP. The final proposed GMP summarizes the status of the County's groundwater resources and outlines the Agency's historical management of the groundwater basin and plan to continue protecting Yuba County's valuable groundwater resources. The GMP sets forth seven basin management objectives to address groundwater storage and elevation monitoring, maintaining and improving groundwater quality, protecting against inelastic land surface subsidence, protection against adverse impacts to surface water flows, improving communication and coordination among basin stakeholders, maintaining local control of the groundwater basin, and improving the understanding of the groundwater basin and its stressors. The basin management objectives presented in the GMP memorialize the successful conjunctive

Legals 1000 Legals 1000

meetings among stakeholders and annual reporting of groundwater conditions.

The proposed GMP is available for public inspection at the Agency's office, 1220 F Street, Marysville, California or at the Yuba County Library, 303 2nd St., Marysville California at the reference desk. Digital copies of the plan are also available at the Agency's website, www.ycwa.com, or on compact disk by request.

The public is invited to attend and provide protests and comments either before the Board hearing or at the Board hearing. The Board shall consider all protests to adoption of the GMP submitted by any landowner within the County at any time prior to the conclusion of the hearing. Written protests can be filed either prior to the Board hearing at the Agency office or at the Board hearing. Written protests by any landowner shall include the landowner's signature and a description of the land owned sufficient to identify the land. The Agency encourages potential protests to be brought to the Agency's attention prior to the Board hearing to expedite the resolution of such protests. If you would like more information about the proposed GMP, please contact Scott Matyac, Water Resources Manager, (530) 741-6278, smatyac@ycwa.com.

December 1 & 7, 2010 Ad #00110486

*This page left blank intentionally.*

# Attachment B.11

# YCWA Web Page Announcement for Board Meeting to Adopt GMP

*This page left blank intentionally.*

## Groundwater Management Plan Update

Yuba County Water Agency
Notice of Public Hearing Concerning Adoption of a Groundwater Management Plan

The Yuba County Water Agency (Agency) will hold a public hearing on Tuesday, December 14, 2010, commencing at 8:30 am at the Yuba County Government Center, Supervisor's Chambers at 915 8th Street, Marysville, CA. The purpose of the public hearing will be to receive public comments on whether or not the Agency should adopt a groundwater management plan (GMP), pursuant to California Water Code division 6, part 2.75 (Assembly Bill No. 3030).

On February 22, 2005, the Agency Board of directors adopted an ordinance (Ordinance No. 9) adopting a GMP that had been developed in participation with a Water Advisory Committee, comprised of local water purveyors, reclamation districts, Yuba County agencies, the Yuba County Resource Conservation District, and Beale Air Force Base. That GMP included a provision that it should be updated after five years.

On October 26, 2010, the Agency Board of Directors approved a resolution of intent (Resolution No. 2010-16) that formally directs the Agency to proceed with the development of a GMP. The Agency has held public meetings and solicited comments and input on the draft GMP. The final proposed GMP summarizes the status of the County's groundwater resources and outlines the Agency's historical management of the groundwater basin and plan to continue protecting Yuba County's valuable groundwater resources. The GMP sets forth seven basin management objectives to address groundwater storage and elevation monitoring, maintaining and improving groundwater quality, protecting against inelastic land surface subsidence, protection against adverse impacts to surface water flows, improving communication and coordination among basin stakeholders, maintaining local control of the groundwater basin, and improving the understanding of the groundwater basin and its stressors. The basin management objectives presented in the GMP memorialize the successful conjunctive water management program the Agency began with the construction of the Yuba River Development Project. The GMP also includes a plan for implementing specific actions to support the basin management objectives, including periodic meetings among stakeholders and annual reporting of groundwater conditions.

The proposed GMP is available for public inspection at the Agency's office, 1220 F Street, Marysville, California or at the Yuba County Library, 303 2nd St., Marysville California at the reference desk. Digital copies of the plan are also available at the Agency's website, www.ycwa.com, or on compact disk by request.

The public is invited to attend and provide protests and comments either before the Board hearing or at the Board hearing. The Board shall consider all protests to adoption of the GMP submitted by any landowner within the County at any time prior to the conclusion of the hearing. Written protests can be filed either prior to the Board hearing at the Agency office or at the Board hearing. Written protests by any landowner shall include the landowner's signature and a description of the land owned sufficient to identify the land. The Agency encourages potential protests to be brought to the Agency's attention prior to the Board hearing to expedite the resolution of such protests. If you would like more information about the proposed GMP, please contact Scott Matyac, Water Resources Manager, (530) 741-6278, smatyac@ycwa.com.

*This page left blank intentionally.*

# Attachment B.12

# YCWA Board Ordinance No. 13 to Adopt the Updated GMP

*This page left blank intentionally.*

# ORDINANCE NO. 13

## AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE YUBA COUNTY WATER AGENCY ADOPTING UPDATED GROUNDWATER MANAGEMENT PLAN

The Board of Directors of the Yuba County Water Agency ordains as follows:

Section 1. This ordinance is adopted with reference to the following background recitals:

a. Water Code section 10750 et seq. and the Yuba County Water Agency Act authorize the Agency to adopt, implement and from time to time update a groundwater management plan.

b. The Agency adopted a groundwater management plan in March 2005. The Agency has committed to a five-year evaluation interval of its groundwater management plan. Updating the groundwater management plan is in furtherance of and consistent with the Agency's goals and objectives.

c. Water Code sections 10753.2 and 10753.5 require that, before adopting a groundwater management plan, the Agency must hold two public hearings concerning the proposed groundwater management plan. The Agency has duly noticed and conducted the two public hearings on August 10, 2010 and December 14, 2010.

d. After considering the public comment and other information presented at the December 16, 2010 hearing, the Board of Directors determines that (i) the Agency has not received a majority written protest against the proposed groundwater management plan pursuant to Water Code section 10753.6, and (ii) it is in the best interests of the Agency that it adopt the updated groundwater management plan.

Section 2. The Board of Directors hereby adopts the updated Yuba County Water Agency Groundwater Management Plan dated December, 2010 in the form as presented at this Board meeting.

Section 3. This ordinance shall take effect 30 days after its final passage.

Section 4. Within 15 days from the date of passage of this ordinance, the Agency Secretary shall (a) publish it one time in a newspaper of general circulation published and circulated in the

7021\O120810rps

-1-

Agency, and (b) submit a copy of the plan in electronic format to the State Department of Water Resources.

INTRODUCED by the Board of Directors on the 14th day of December 2010.

PASSED AND ADOPTED by the Board of Directors of the Yuba County Water Agency on the 28th day of December 2010, by the following vote:

AYES: DIRECTORS ABE, BELZA, MUCK, NICOLETTI, STOCKER AND VASQUEZ
NOES: NONE
ABSTAIN: NONE
ABSENT: DIRECTOR GRIEGO

Chair, Board of Directors

Attest:

Jeanene Upton, Assistant Secretary

I hereby certify that the foregoing is a true and correct copy of Yuba County Water Agency Ordinance No. 13, which ordinance was duly introduced, adopted and posted pursuant to law.

Jeanene Upton, Assistant Secretary

7021\O120810rps

-2-

# Attachment B.13

# Publication of YCWA Board Ordinance to Adopt the Updated GMP

*This page left blank intentionally.*

# APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901
(530) 741-2345

This space is for the County Clerk's filing stamp.

## Affidavit of Publication

(2015.5 C.C.P)

**STATE OF CALIFORNIA,**

**Counties of Yuba and Sutter**

**Yuba County Water Agency**

**Ordinance No. 13**

**I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No. CV PT99-0819 that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:**

**December 31, 2010**

I declare under penalty of perjury
that the foregoing is true and correct.
Executed at Marysville, California

**January 4, 2011**

Date: _____

Kelee Smith

(Signature)

**ORDINANCE NO. 13**

**AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE YUBA COUNTY WATER AGENCY ADOPTING UPDATED GROUNDWATER MANAGEMENT PLAN**

The Board of Directors of the Yuba County Water Agency ordains as follows:

Section 1. This ordinance is adopted with reference to the following background recitals.

a. Water Code section 10750 et seq. and the Yuba County Water Agency Act authorize the Agency to adopt, implement and from time to time update a groundwater management plan.

b. The Agency adopted a groundwater management plan in March 2005. The Agency has committed to a five-year evaluation interval of its groundwater management plan. Updating the groundwater management plan is in furtherance of and consistent with the Agency's goals and objectives.

c. Water Code section 10753.2 and 10753.5 require that, before adopting a groundwater management plan, the Agency must hold two public hearings concerning the proposed groundwater management plan. The Agency has duly notices and conducted the two public hearings on August 10, 2010 and December 14, 2010.

d. After considering the public comment and other information presented at the December 16, 2010 hearing, the Board of Directors determines that (i) the Agency has not received a majority written protest against the proposed groundwater management plan pursuant to Water Code section 10753.6, and (ii) it is in the best interests of the Agency that it adopt the update groundwater management plan.

Section 2. The Board of Directors hereby adopts the updated Yuba County Water Agency Groundwater Management Plan dated December, 2010 in the form as presented at this Board meeting.

Section 3. This ordinance shall take effect 30 days after its final passage.

Section 4. Within 15 days from the date of passage of this ordinance, the Agency Secretary shall (a) publish it one time in a newspaper of general circulation published and circulated in the Agency, and (b) submit a copy of the plan in electronic format to the State Department of Water Resources.

INTRODUCED by the Board of Directors on the 14th day of December 2010.

PASSED AND ADOPTED by the Board of Directors of the Yuba County Water Agency on the 28th day of December 2010, by the following vote:

AYES: Directors Abe, Belza, Muck, Nicoletti, Stocker and Vasquez
NOES: None
ABSTAIN: None
ABSENT: Director Griego

Tib Belza
Chair, Board of Directors

Attest:

Jeanene Upton, Assistant Secretary

I hereby certify that the foregoing is a true and correct copy of Yuba County Water Agency Ordinance No. 13, which ordinance was duly introduced, adopted and posted pursuant to law.

Jeanene Upton, Assistant Secretary

December 31, 2010

Ad #00111994

*This page left blank intentionally.*

# Attachment B.14

# YCWA Web Page Notice for Board Adoption of GMP

*This page left blank intentionally.*

Yuba County Water Agency :: Groundwater Management Plan Update

Page 1 of 1

Home | Relicensing | About | Contact | Meetings and Minutes | Employment | Links

## Groundwater Management Plan Update

The Yuba County Water Agency Board of Directors adopted the updated Groundwater Management Plan on December 14, 2010. Following is the text of the adopting ordinance.

Printed and electronic copies of the GMP report are in production and will be available soon. For further information, please contact Scott Matyac, Water Resources Manager, at 530-741-6278 x117 or smatyac@ycwa.com

ORDINANCE NO. 13

AN ORDINANCE OF THE BOARD OF DIRECTORS
OF THE YUBA COUNTY WATER AGENCY

ADOPTING UPDATED GROUNDWATER MANAGEMENT PLAN

The Board of Directors of the Yuba County Water Agency ordains as follows:

Section 1. This ordinance is adopted with reference to the following background recitals:

a. Water Code section 10750 et seq. and the Yuba County Water Agency Act authorize the Agency to adopt, implement and from time to time update a groundwater management plan.

b. The Agency adopted a groundwater management plan in March 2005. The Agency has committed to a five-year evaluation interval of its groundwater management plan. Updating the groundwater management plan is in furtherance of and consistent with the Agency's goals and objectives.

c. Water Code sections 10753.2 and 10753.5 require that, before adopting a groundwater management plan, the Agency must hold two public hearings concerning the proposed groundwater management plan. The Agency has duly noticed and conducted the two public hearings on August 10, 2010 and December 14,2010.

d. After considering the public comment and other information presented at the December 16, 2010 hearing, the Board of Directors determines that (i) the Agency has not received a majority written protest against the proposed groundwater management plan pursuant to Water Code section 10753.6, and (ii) it is in the best interests of the Agency that it adopt the updated groundwater management plan.

Section 2. The Board of Directors hereby adopts the updated Yuba County Water Agency Groundwater Management Plan dated December, 2010 in the form as presented at this Board meeting.

Section 3. This ordinance shall take effect 30 days after its final passage.

Section 4. Within 15 days from the date of passage of this ordinance, the Agency Secretary shall (a) publish it one time in a newspaper of general circulation published and circulated in the Agency, and (b) submit a copy of the plan in electronic format to the State Department of Water Resources.

INTRODUCED by the Board of Directors on the 14th day of December 2010.

PASSED AND ADOPTED by the Board of Directors of the Yuba County Water Agency on the 28th day of December 2010.

Flood Control | Water Supply | Fishery Enhancement | Recreation | Hydroelectric Generation

http://www.ycwa.com/projects/detail/12

*This page left blank intentionally.*

YUBA COUNTY WATER AGENCY

~ 1959 ~

# Appendix E

Linda County Water District Water Quality Consumer Confidence Reports

# 2005
# ANNUAL
# CONSUMER CONFIDENCE
# REPORT

# LINDA COUNTY
# WATER
# DISTRICT

(530) 743-2043
1280 SCALES STREET
MARYSVILLE, CA 95901

LINDA COUNTY WATER DISTRICT
1280 Scales Street
Marysville, California 95901

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
MARYSVILLE, CA
PERMIT NO. 128

# Linda County Water District
# 2005 Water Quality Consumer Confidence Report
# Public Water System Number 58-1002

Dear Customer:

Linda County Water District is required by the E.P.A. and the California Dept. of Health Services to provide you with an annual report on the quality of the water served to our customers. If you have any questions about the quality of the drinking water in Linda or would like additional information, please call me at 743-2043, or stop by my office at 1280 Scales Street between 8:00 a.m. and 5:00 p.m. Monday through Friday. If you are a landowner of rental property, please provide copies to your tenants.

**Douglas W. Lofton, *District Manager***

The water supply for Linda originates from ground water pumped from 6 wells, Nos. 3, 4, 12, 14, 15 and 16. These wells are strategically located throughout the District to ensure a constant pressure level.

## DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT

**Maximum Contaminant level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is technologically, and economically feasible.
**Primary Drinking Water Standards (PDWS):** MCLs for contaminates that affect health along with their monitoring and reporting requirements, and surface water treatment requirements.
**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the Federal Environmental Protection Agency (USEPA)
**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.
**n/a:** nonapplicable
**ppb:** parts per billion or micrograms per liter
**ppm:** parts per million or milligrams per liter
**nd:** non detectable at testing limit

## MICROBIOLOGICAL WATER QUALITY:

Testing for bacteriological contaminates in the distribution system is required by State regulations. This testing is done regularly to verify that the water system is free from coliform bacteria. The minimum number of tests required per month is 12. In our distribution system, we test the water weekly for coliform bacteria. The highest number of samples found to contain coliform bacteria during any one month was zero.

## LEAD & COPPER TESTING RESULTS:

Lead & copper testing of water from individual taps in the distribution system is required by State regulations. The table below summarizes the most recent monitoring for these constituents in parts per billion or micrograms per liter.

| | Sample Date | No. of Samples Required | No. of Samples Collected | 90th Percentile Results ppb | Action Level (ppb) | MCLG ppm | No. of samples that exceeded action level |
|---|---|---|---|---|---|---|---|
| Lead | 2004 | 20 | 21 | <2.0 | 15 | 2 | 0 |
| Copper | 2004 | 20 | 21 | 62.5 | 1300 | 170 | 0 |

## DETECTED CONTAMINANTS IN OUR WATER:

The following table gives a list of all detected chemicals in our water during the most recent sampling. Please note that not all sampling is required annually so in some cases our results are more than one year old. These values are expressed in ppm unless otherwise stated. Milligrams per liter are equivalent to parts per million (ppm).

| Chemical Detected | Units | Average or Source | Range | Date | MCL | PHG | Origin |
|---|---|---|---|---|---|---|---|
| Barium | ppb | 105 | 81-143 | 2004 | 1000 | n/a | oil drilling waste and natural deposits |
| Total Hardness | ppm | 135 | 107-184 | 2005 | n/a | n/a | naturally occuring |
| Sodium | ppm | 25 | 14-43 | 2005 | n/a | n/a | naturally occuring |
| TDS | ppm | 245 | 196-280 | 2004 | 1500 | n/a | naturally occuring |
| Chloride | ppm | 34 | 13-80 | 2004 | 500 | n/a | naturally occuring |
| Boron | ppm | 140 | nd-320 | 2002 | n/a | n/a | naturally occuring |
| Fluoride | ppm | Well 16 0.15 | n/a | 2005 | 2 | 1 | naturally occuring |
| Color | ppm | Well 15 3 | n/a | 2003 | 15 | n/a | naturally occuring |
| Sulfate | ppm | 10 | .04-32 | 2004 | 500 | 0.5 | naturally occuring |
| Asenic | ppb | nd | nd-3.5 | 2004 | 50 | .004 | erosion of natural deposits, run off from orchards, glass and electronics production waste |

## GENERAL INFORMATION ON DRINKING WATER:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791, or their web site at www.epa.gov/safe water.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproducts Precursors**

| Contaminants | Distribution System Results | MCL or [MRDL] | PHG [MCLG or [MRDLG] | Major Sources in Drinking Water |
|---|---|---|---|---|
| TTHMs [Total Trihalomethanes] (ppb) | 7.3 | 80 | n/a | Byproduct of drinking water chlorination |
| Halocetic Acids (ppb) | nd | 60 | n/a | Byproduct of drinking water disinfection |
| Chlorine (ppm) | Range 0.01-0.84<br>Average 0.43 | 4.0 | 4.0 | Drinking water disinfectant added for treatment |

## ADDITIONAL INFORMATION:

A source water assessment has been completed for the six wells serving the community of Linda. The sources are considered most vulnerable to the following activities. Well 12 has contaminants associated with these activities. Water from Well 12 is treated before it enters the distribution system.

Automobile Repair *(Wells 3 and 4)*
Automobile Gas Stations *( Wells 12 and 14)*
Sewer Collection Systems *(Wells 3, 4, 15 and 16)*
Septic Systems *(Well 15)*

A copy of the complete assessment may be viewed at:

DHS Valley District Office
415 Knollcrest Drive, Suite 110
Redding, CA 96002
Attention: Richard Hinrichs, (530) 224-4867

*or at*

Linda County Water District
1280 Scales Street
Marysville, CA 95901
Attention: Doug Lofton, (530) 743-2043

*******Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.**

# 2006
# ANNUAL
# CONSUMER CONFIDENCE
# REPORT

# LINDA COUNTY
# WATER
# DISTRICT

(530) 743-2043
1280 SCALES STREET
MARYSVILLE, CA 95901

LINDA COUNTY WATER DISTRICT
1280 Scales Street
Marysville, California 95901

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
MARYSVILLE, CA
PERMIT NO. 128

# Linda County Water District
# 2006 Water Quality Consumer Confidence Report
# Public Water System Number 58-1002

Dear Customer:

Linda County Water District is required by the E.P.A. and the California Dept. of Health services to provide you with an annual report on the quality of the water served to our customers. If you have any questions about the quality of the drinking water in Linda or would like additional information, please call me at 743-2043, or stop by my office at 1280 Scales Street between 8:00 a.m. and 5:00 p.m. Monday through Friday. If you are a landowner of rental property, please provide copies to your tenants.

**Douglas W. Lofton, District Manager**

The water supply for Linda originates from ground water pumped from 6 wells, Nos. 3, 4, 12, 14, 15 and 16. These wells are strategically located throughout the District to ensure a constant pressure level.

## DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is technologically, and economically feasible.
**Primary Drinking Water Standards (PDWS):** MCLs for contaminates that affect health along with their monitoring and reporting requirements, and surface water treatment requirements.
**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is not known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the Federal Environmental Protection Agency (USEPA).
**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.
**n/a:** nonapplicable
**ppb:** parts per billion or micrograms per liter
**ppm:** parts per million or milligrams per liter
**nd:** non detectable at testing limit

## MICROBIOLOGICAL WATER QUALITY:

In our distribution system, we test the water weekly for coliform bacteria. The highest number of samples found to contain coliform bacteria during any one month was one.

## LEAD & COPPER TESTING RESULTS:

| | Sample Date | No. of Samples Required | No. of Samples Collected | 90th Percentile Results ppb | Action Level (ppb) | MCLG ppm | No. of samples that exceeded action level |
|---|---|---|---|---|---|---|---|
| Lead | 2004 | 20 | 21 | <2.0 | 15 | 2 | 0 |
| Copper | 2004 | 20 | 21 | 62.5 | 1300 | 170 | 0 |

## DETECTED CONTAMINANTS IN OUR WATER:

The following table gives a list of all detected chemicals in our water during the most recent sampling. Please note that not all sampling is required annually so in some cases our results are more than one year old. These values are expressed in ppm unless otherwise stated. Milligrams per liter are equivalent to parts per million (ppm).

| Chemical Detected | Units | Average or Source | Range | Date | MCL | PHG | Origin |
|---|---|---|---|---|---|---|---|
| Barium | ppb | 105 | 81-143 | 2004 | 1000 | n/a | oil drilling waste and natural deposits |
| Total Hardness | ppm | 135 | 107-184 | 2005 | n/a | n/a | naturally occurring |
| Sodium | ppm | 25 | 14-43 | 2005 | n/a | n/a | naturally occurring |
| TDS | ppm | 245 | 196-280 | 2004 | 1500 | n/a | naturally occurring |
| Chloride | ppm | 34 | 13-80 | 2004 | 500 | n/a | naturally occurring |
| Boron | ppm | 140 | nd-320 | 2002 | n/a | n/a | naturally occurring |
| Fluoride | ppm | well 16 0.15 | n/a | 2005 | 2 | 1 | naturally occurring |
| Color | ppm | well 15 3 | n/a | 2003 | 15 | n/a | naturally occurring |
| Sulfate | ppm | 10 | .04-32 | 2004 | 500 | 0.5 | naturally occurring |
| Arsenic | ppb | nd | nd-3.5 | 2004 | 10 | .004 | erosion of natural deposits, run off from orchards, glass and electronics production waste |

## GENERAL INFORMATION ON DRINKING WATER:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come form a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the Sate Department of Health Services (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproducts Precursors**

| Contaminants | Distribution System Results | MCL or [MRDL] | PHG [MCLG or [MRDLG] | Major Sources in Drinking Water |
|---|---|---|---|---|
| TTHMs [Total Trihalomethanes] (ppb) | 7.3 | 80 | n/a | Byproduct of drinking water chlorination |
| Halocetic Acids (ppb) | nd | 60 | n/a | Byproduct of drinking water disinfection |
| Chlorine (ppm) | Range 0.01-0.98<br>Average 0.50 | 4.0 | 4.0 | Drinking water disinfectant added for treatment |

## ADDITIONAL INFORMATION:

A source water assessment has been completed for the six wells serving the community of Linda. The sources are considered most vulnerable to the following activities: Well 12 has contaminants associated with these activities. Water from Well 12 is treated before it enters the distribution system.

Automobile Repair *(Wells 3 and 4)*
Automobile Gas Stations *(Wells 12 and 14)*
Sewer Collection Systems *(Wells 3, 4, 15 and 16)*
Septic Systems *(Well 15)*

A copy of the complete assessment may be viewed at:

DHS Valley District Office
415 Knollcrest Drive, Suite 110
Redding, CA 96002
Attention: Richard Hinrichs, (530) 224-4867

*or at*

Linda County Water District
1280 Scales Street
Marysville, CA 95901
Attention: Doug Lofton, (530) 743-2043

*******Este informe contiene información muy importante sobre su agua beber.**
**Tradúzcalo ó hable con alguien due lo antinode bien.**

# 2007
# ANNUAL
# CONSUMER CONFIDENCE
# REPORT

# LINDA COUNTY
# WATER
# DISTRICT

(530) 743-2043
1280 SCALES STREET
MARYSVILLE, CA 95901

LINDA COUNTY WATER DISTRICT
1280 Scales Street
Marysville, California 95901

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
MARYSVILLE, CA
PERMIT NO. 128

# Linda County Water District
# 2007 Water Quality Consumer Confidence Report
# Public Water System Number 58-10002

Dear Customer:

Linda County Water District is required by the E.P.A. and the California Dept. of Health services to provide you with an annual report on the quality of the water served to our customers. If you have any questions about the quality of the drinking water in Linda or would like additional information, please call me at 743-2043, or stop by my office at 1280 Scales Street between 8:00 a.m. and 5:00 p.m. Monday through Friday. If you are a landowner of rental property, please provide copies to your tenants.

**Douglas W. Lofton, District Manager**

The water supply for Linda originates from ground water pumped from 6 wells, Nos. 3, 4, 12, 14, 15 and 16. These wells are strategically located throughout the District to ensure a constant pressure level.

## DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is technologically, and economically feasible.
**Primary Drinking Water Standards (PDWS):** MCLs for contaminates that affect health along with their monitoring and reporting requirements, and surface water treatment requirements.
**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is not known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the Federal Environmental Protection Agency (USEPA).
**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.
**n/a:** nonapplicable
**ppb:** parts per billion or micrograms per liter
**ppm:** parts per million or milligrams per liter
**nd:** non detectable at testing limit

## MICROBIOLOGICAL WATER QUALITY:

In our distribution system, we test the water weekly for coliform bacteria. The highest number of samples found to contain coliform bacteria during any one month was none.

## LEAD & COPPER TESTING RESULTS:

| | Sample Date | No. of Samples Required | No. of Samples Collected | 90th Percentile Results ppb | Action Level (ppb) | MCLG ppm | No. of samples that exceeded action level |
|---|---|---|---|---|---|---|---|
| Lead | 2007 | 30 | 30 | ND | 15 | 2 | 0 |
| Copper | 2007 | 30 | 30 | 94 | 1300 | 170 | 0 |

## DETECTED CONTAMINANTS IN OUR WATER:

The following table gives a list of all detected chemicals in our water during the most recent sampling. Please note that not all sampling is required annually so in some cases our results are more than one year old. These values are expressed in ppm unless otherwise stated. Milligrams per liter are equivalent to parts per million (ppm).

| Chemical Detected | Units | Average or Source | Range | Date | MCL | PHG | Origin - Health Effects Language |
|---|---|---|---|---|---|---|---|
| Barium | ppb | 105 | 81-143 | 2004 | 1000 | n/a | oil drilling waste and natural deposits |
| Total Hardness | ppm | 135 | 107-184 | 2005 | n/a | n/a | naturally occurring |
| Sodium | ppm | 25 | 14-43 | 2005 | n/a | n/a | naturally occurring |
| TDS | ppm | 245 | 196-280 | 2004 | 1500 | n/a | naturally occurring |
| Chloride | ppm | 34 | 13-80 | 2004 | 500 | n/a | naturally occurring |
| Boron | ppm | 140 | nd-320 | 2002 | n/a | n/a | naturally occurring |
| Fluoride | ppm | well 16 0.15 | n/a | 2005 | 2 | 1 | naturally occurring |
| Color | ppm | well 15 3 | n/a | 2003 | 15 | n/a | naturally occurring |
| Sulfate | ppm | 10 | .04-32 | 2004 | 500 | 0.5 | naturally occurring |
| Arsenic | ppb | nd | nd-3.5 | 2004 | 10 | .004 | erosion of natural deposits, run off from orchards, glass and electronics production waste |
| Benzene | ppb | well 12 0.11 | nd - 0.67 | 2007 | 1 | 0.15 | Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills. Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |

## GENERAL INFORMATION ON DRINKING WATER:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come form a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the Sate Department of Health Services (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproducts Precursors**

| Contaminants | Distribution System Results | MCL or [MRDL] | PHG [MCLG or [MRDLG] | Major Sources in Drinking Water |
|---|---|---|---|---|
| TTHMs [Total Trihalomethanes] (ppb) | 21.3 | 80 | n/a | Byproduct of drinking water chlorination |
| Halocetic Acids (ppb) | nd | 60 | n/a | Byproduct of drinking water disinfection |
| Chlorine (ppm) | Range 0.02-1.75<br>Average 0.88 | 4.0 | 4.0 | Drinking water disinfectant added for treatment |

## ADDITIONAL INFORMATION:

A source water assessment has been completed for the six wells serving the community of Linda. The sources are considered most vulnerable to the following activities: Well 12 has contaminants associated with these activities. Water from Well 12 is treated before it enters the distribution system.

Automobile Repair *(Wells 3 and 4)*
Automobile Gas Stations *(Wells 12 and 14)*
Sewer Collection Systems *(Wells 3, 4, 15 and 16)*
Septic Systems *(Well 15)*

A copy of the complete assessment may be viewed at:

DHS Valley District Office
415 Knollcrest Drive, Suite 110
Redding, CA 96002
Attention: Richard Hinrichs, (530) 224-4867

*or at*

Linda County Water District
1280 Scales Street
Marysville, CA 95901
Attention: Doug Lofton, (530) 743-2043

*******Este informe contiene información muy importante sobre su agua beber.**
**Tradúzcalo ó hable con alguien due lo antinode bien.**

# 2008
# ANNUAL CONSUMER CONFIDENCE REPORT

# LINDA COUNTY WATER DISTRICT

(530) 743-2043
1280 SCALES AVENUE
MARYSVILLE, CA 95901

LINDA COUNTY WATER DISTRICT
1280 Scales Avenue
Marysville, California 95901

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
MARYSVILLE, CA
PERMIT NO. 128

# Linda County Water District
# 2008 Water Quality Consumer Confidence Report
# Public Water System Number 58-10002

Dear Customer:

Linda County Water District is required by the E.P.A. and the California Dept. of Health services to provide you with an annual report on the quality of the water served to our customers. If you have any questions about the quality of the drinking water in Linda or would like additional information, please call me at 743-2043, or stop by my office at 1280 Scales Avenue between 8:00 a.m. and 5:00 p.m. Monday through Friday. If you are a landowner of rental property, please provide copies to your tenants.

**Douglas W. Lofton, District Manager**

The water supply for Linda originates from ground water pumped from 6 wells, Nos. 3, 4, 12, 14, 15 and 16. These wells are strategically located throughout the District to ensure a constant pressure level. The treatment process consists of aeration, filtration and chlorination.

## DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is technologically, and economically feasible.
**Primary Drinking Water Standards (PDWS):** MCLs for contaminates that affect health along with their monitoring and reporting requirements, and surface water treatment requirements.
**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is not known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the Federal Environmental Protection Agency (USEPA).
**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.
**n/a:** nonapplicable
**ppb:** parts per billion or micrograms per liter
**ppm:** parts per million or milligrams per liter
**nd:** non detectable at testing limit

## MICROBIOLOGICAL WATER QUALITY:

In our distribution system, we test the water weekly for coliform bacteria. The highest number of samples found to contain coliform bacteria during any one month was one.

## LEAD & COPPER TESTING RESULTS:

| | Sample Date | No. of Samples Required | No. of Samples Collected | 90th Percentile Results ppb | Action Level (ppb) | MCLG ppm | No. of samples that exceeded action level |
|---|---|---|---|---|---|---|---|
| Lead | 2007 | 30 | 30 | ND | 15 | 2 | 0 |
| Copper | 2007 | 30 | 30 | 94 | 1300 | 170 | 0 |

## DETECTED CONTAMINANTS IN OUR WATER:

The following table gives a list of all detected chemicals in our water during the most recent sampling. Please note that not all sampling is required annually so in some cases our results are more than one year old. These values are expressed in ppm unless otherwise stated. Milligrams per liter are equivalent to parts per million (ppm).

| Chemical Detected | Units | Average or Source | Range | Date | MCL | PHG | Origin - Health Effects Language |
|---|---|---|---|---|---|---|---|
| Barium | ppb | 112 | 56-173 | 2008 | 1000 | n/a | oil drilling waste and natural deposits |
| Total Hardness | ppm | 149 | 98-231 | 2008 | n/a | n/a | naturally occurring |
| Sodium | ppm | 25 | 16-40 | 2008 | n/a | n/a | naturally occurring |
| TDS | ppm | 269 | 136-346 | 2008 | 1500 | n/a | naturally occurring |
| Chloride | ppm | 42 | 18-72 | 2008 | 500 | n/a | naturally occurring |
| Boron | ppm | 140 | nd-320 | 2002 | n/a | n/a | naturally occurring |
| Fluoride | ppm | nd | nd | 2008 | 2 | 1 | naturally occurring |
| Color | ppm | 3 | nd-4 | 2008 | 15 | n/a | naturally occurring |
| Sulfate | ppm | 11 | 0.4-50 | 2008 | 500 | 0.5 | naturally occurring |
| Arsenic | ppb | nd | nd-2.7 | 2008 | 10 | .004 | erosion of natural deposits, run off from orchards, glass and electronics production waste |
| Benzene | ppb | well 12 0.09 | nd - 0.54 | 2008 | 1 | 0.15 | Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills. Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |

## GENERAL INFORMATION ON DRINKING WATER:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come form a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the Sate Department of Health Services (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproducts Precursors**

| Contaminants | Distribution System Results | Date | MCL or [MRDL] | PHG [MCLG or [MRDLG] | Major Sources in Drinking Water |
|---|---|---|---|---|---|
| TTHMs [Total Trihalomethanes] (ppb) | 15.4 | 2008 | 80 | n/a | Byproduct of drinking water chlorination |
| Haloacetic Acids (ppb) | nd | 2008 | 60 | n/a | Byproduct of drinking water disinfection |
| Chlorine (ppm) | Range 0.03-1.36<br>Average 0.70 | 2008 | 4.0 | 4.0 | Drinking water disinfectant added for treatment |

## ADDITIONAL INFORMATION:

A source water assessment has been completed for the six wells serving the community of Linda. The sources are considered most vulnerable to the following activities: Well 12 has contaminants associated with these activities. Water from Well 12 is treated before it enters the distribution system.

Automobile Repair *(Wells 3 and 4)*
Automobile Gas Stations *(Wells 12 and 14)*
Sewer Collection Systems *(Wells 3, 4, 15 and 16)*
Septic Systems *(Well 15)*

A copy of the complete assessment may be viewed at:

DHS Valley District Office
415 Knollcrest Drive, Suite 110
Redding, CA 96002
Attention: Richard Hinrichs, (530) 224-4867

*or at*

Linda County Water District
1280 Scales Avenue
Marysville, CA 95901
Attention: Doug Lofton, (530) 743-2043

*******Este informe contiene información muy importante sobre su agua beber.**
**Tradúzcalo ó hable con alguien due lo antinode bien.**

LINDA COUNTY WATER DISTRICT
1280 Scales Avenue
Marysville, California 95901

ADDRESS SERVICE REQUESTED

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
MARYSVILLE, CA
PERMIT NO. 128

# 2009 ANNUAL CONSUMER CONFIDENCE REPORT

LINDA COUNTY WATER DISTRICT

(530) 743-2043
1280 SCALES AVENUE
MARYSVILLE, CA 95901

# Linda County Water District
# 2009 Water Quality Consumer Confidence Report
# Public Water System Number 58-10002

Dear Customer:

Linda County Water District is required by the E.P.A. and the California Department of Public Health to provide you with an annual report on the quality of the water served to our customers. If you have any questions about the quality of the drinking water in Linda or would like additional information, please call me at 743-2043, or stop by my office at 1280 Scales Avenue between 8:00 a.m. and 5:00 p.m. Monday through Friday. If you are a landowner of rental property, please provide copies to your tenants. The Board of Directors of the Linda County Water District meet the 2nd Monday at 7:00 P.M. each month here at the District office. The public is encouraged to attend.

**Douglas W. Lofton, District Manager**

The water supply for Linda originates from ground water pumped from 6 wells, Nos. 3, 4, 12, 14, 15 and 16. These wells are strategically located throughout the District to ensure a constant pressure level. The treatment process consists of aeration, filtration and chlorination.

## DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is technologically, and economically feasible.
**Primary Drinking Water Standards (PDWS):** MCLs for contaminates that affect health along with their monitoring and reporting requirements, and surface water treatment requirements.
**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is not known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the Federal Environmental Protection Agency (USEPA).
**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.
**n/a:** nonapplicable
**ppb:** parts per billion or micrograms per liter
**ppm:** parts per million or milligrams per liter
**nd:** non detectable at testing limit

## MICROBIOLOGICAL WATER QUALITY:

In our distribution system, we test the water weekly for coliform bacteria. The highest number of samples found to contain coliform bacteria during any one month was one.

## LEAD & COPPER TESTING RESULTS:

| | Sample Date | No. of Samples Required | No. of Samples Collected | 90th Percentile Results ppb | Action Level (ppb) | MCLG ppm | No. of samples that exceeded action level |
|---|---|---|---|---|---|---|---|
| Lead | 2007 | 30 | 30 | ND | 15 | 2 | 0 |
| Copper | 2007 | 30 | 30 | 94 | 1300 | 170 | 0 |

## DETECTED CONTAMINANTS IN OUR WATER:

The following table gives a list of all detected chemicals in our water during the most recent sampling. Please note that not all sampling is required annually so in some cases our results are more than one year old. These values are expressed in ppm unless otherwise stated. Milligrams per liter are equivalent to parts per million (ppm).

| Chemical Detected | Units | Average or Source | Range | Date | MCL | PHG | Origin - Health Effects Language |
|---|---|---|---|---|---|---|---|
| Barium | ppb | 112 | 56-173 | 2008 | 1000 | n/a | oil drilling waste and natural deposits |
| Total Hardness | ppm | 149 | 98-231 | 2008 | n/a | n/a | naturally occurring |
| Sodium | ppm | 25 | 16-40 | 2008 | n/a | n/a | naturally occurring |
| TDS | ppm | 269 | 136-346 | 2008 | 1500 | n/a | naturally occurring |
| Chloride | ppm | 42 | 18-72 | 2008 | 500 | n/a | naturally occurring |
| Boron | ppm | 140 | nd-320 | 2002 | n/a | n/a | naturally occurring |
| Fluoride | ppm | nd | nd | 2008 | 2 | 1 | naturally occurring |
| Color | ppm | 3 | nd-4 | 2008 | 15 | n/a | naturally occurring |
| Sulfate | ppm | 11 | 0.4-50 | 2008 | 500 | 0.5 | naturally occurring |
| Arsenic | ppb | nd | nd-2.7 | 2008 | 10 | .004 | erosion of natural deposits, run off from orchards, glass and electronics production waste |
| Benzene | ppb | well 12 0.10 | nd - 0.62 | 2009 | 1 | 0.15 | Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills. Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |

## GENERAL INFORMATIONON DRINKING WATER:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come form a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproducts Precursors**

| Contaminants | Distribution System Results | Date | MCL or [MRDL] | PHG [MCLG or [MRDLG] | Major Sources in Drinking Water |
|---|---|---|---|---|---|
| TTHMs [Total Trihalomethanes] (ppb) | 15.4 | 2008 | 80 | n/a | Byproduct of drinking water chlorination |
| Halocetic Acids (ppb) | nd | 2008 | 60 | n/a | Byproduct of drinking water disinfection |
| Chlorine (ppm) | Range 0.03-1.36 / Average 0.70 | 2009 | 4.0 | 4.0 | Drinking water disinfectant added for treatment |

## ADDITIONAL INFORMATION:

A source water assessment has been completed for the six wells serving the community of Linda. The sources are considered most vulnerable to the following activities: Well 12 has contaminants associated with these activities. Water from Well 12 is treated before it enters the distribution system.

Automobile Repair *(Wells 3 and 4)*
Automobile Gas Stations *(Wells 12 and 14)*
Sewer Collection Systems *(Wells 3, 4, 15 and 16)*
Septic Systems *(Well 15)*

A copy of the complete assessment may be viewed at:

DPH Valley District Office
415 Knollcrest Drive, Suite 110
Redding, CA 96002
Attention: Richard Hinrichs, (530) 224-4867

*or at*

Linda County Water District
1280 Scales Avenue
Marysville, CA 95901
Attention: Doug Lofton, (530) 743-2043

*******Este informe contiene información muy importante sobre su agua beber.**
**Tradúzcalo ó hable con alguien due lo antinode bien.**

LINDA COUNTY WATER DISTRICT
1280 Scales Avenue
Marysville, California 95901

ADDRESS SERVICE REQUESTED

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
MARYSVILLE, CA
PERMIT NO. 128

# 2010 ANNUAL CONSUMER CONFIDENCE REPORT

LINDA COUNTY WATER DISTRICT

(530) 743-2043
1280 SCALES AVENUE
MARYSVILLE, CA 95901

# Linda County Water District
# 2010 Water Quality Consumer Confidence Report
# Public Water System Number 58-10002

Dear Customer:

Linda County Water District is required by the E.P.A. and the California Department of Public Health to provide you with an annual report on the quality of the water served to our customers. If you have any questions about the quality of the drinking water in Linda or would like additional information, please call me at 743-2043, or stop by my office at 1280 Scales Avenue between 8:00 a.m. and 5:00 p.m. Monday through Friday. If you are a landowner of rental property, please provide copies to your tenants. The Board of Directors of the Linda County Water District meet the 2nd Monday at 7:00 P.M. each month here at the District office. The public is encouraged to attend.

**Douglas W. Lofton, District Manager**

The water supply for Linda originates from ground water pumped from 6 wells, Nos. 3, 4, 12, 14, 15 and 16. These wells are strategically located throughout the District to ensure a constant pressure level. The treatment process consists of aeration, filtration and chlorination.

## DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is technologically, and economically feasible.
**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is not known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the Federal Environmental Protection Agency (USEPA).
**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
**ppb:** parts per billion or micrograms per liter
**ppm:** parts per million or milligrams per liter
**nd:** non detectable at testing limit

## MICROBIOLOGICAL WATER QUALITY:

In our distribution system, we test the water weekly for coliform bacteria. The highest number of samples found to contain coliform bacteria during any one month was one.

## LEAD & COPPER TESTING RESULTS:

| | Sample Date | No. of Samples Required | No. of Samples Collected | 90th Percentile Results ppb | Action Level (ppb) | MCLG ppm | No. of samples that exceeded action level |
|---|---|---|---|---|---|---|---|
| Lead | 2010 | 30 | 32 | ND | 15 | 2 | 0 |
| Copper | 2010 | 30 | 32 | 64 | 1300 | 170 | 0 |

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Linda County Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead

## DETECTED CONTAMINANTS IN OUR WATER:

The following table gives a list of all detected chemicals in our water during the most recent sampling. Please note that not all sampling is required annually so in some cases our results are more than one year old. These values are expressed in ppm unless otherwise stated. Milligrams per liter are equivalent to parts per million (ppm).

| Chemical Detected | Units | Average or Source | Range | Date | MCL | PHG | Origin - Health Effects Language |
|---|---|---|---|---|---|---|---|
| Barium | ppb | 112 | 56-173 | 2008 | 1000 | n/a | oil drilling waste and natural deposits |
| Total Hardness | ppm | 149 | 98-231 | 2008 | n/a | n/a | naturally occurring |
| Sodium | ppm | 25 | 16-40 | 2008 | n/a | n/a | naturally occurring |
| TDS | ppm | 269 | 136-346 | 2008 | 1500 | n/a | naturally occurring |
| Chloride | ppm | 42 | 18-72 | 2008 | 500 | n/a | naturally occurring |
| Boron | ppm | 140 | nd-320 | 2002 | n/a | n/a | naturally occurring |
| Fluoride | ppm | nd | nd | 2008 | 2 | 1 | naturally occurring |
| Color | ppm | 3 | nd-4 | 2008 | 15 | n/a | naturally occurring |
| Sulfate | ppm | 11 | 0.4-50 | 2008 | 500 | 0.5 | naturally occurring |
| Arsenic | ppb | nd | nd-2.7 | 2008 | 10 | .004 | erosion of natural deposits, run off from orchards, glass and electronics production waste |
| Benzene | ppb | well 12 0.10 | nd - 0.62 | 2010 | 1 | 0.15 | Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills. Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |

## GENERAL INFORMATIONON DRINKING WATER:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come form a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproducts Precursors**

| Contaminants | Distribution System Results | Date | MCL or [MRDL] | PHG [MCLG or [MRDLG] | Major Sources in Drinking Water |
|---|---|---|---|---|---|
| TTHMs [Total Trihalomethanes] (ppb) | 15.4 | 2008 | 80 | n/a | Byproduct of drinking water chlorination |
| Halocetic Acids (ppb) | nd | 2008 | 60 | n/a | Byproduct of drinking water disinfection |
| Chlorine (ppm) | Range 0.03-1.36<br>Average 0.70 | 2010 | 4.0 | 4.0 | Drinking water disinfectant added for treatment |

## ADDITIONAL INFORMATION:

A source water assessment has been completed for the six wells serving the community of Linda. The sources are considered most vulnerable to the following activities: Well 12 has contaminants associated with these activities. Water from Well 12 is treated before it enters the distribution system.

Automobile Repair *(Wells 3 and 4)*
Automobile Gas Stations *(Wells 12 and 14)*
Sewer Collection Systems *(Wells 3, 4, 15 and 16)*
Septic Systems *(Well 15)*

A copy of the complete assessment may be viewed at:

DPH Valley District Office
415 Knollcrest Drive, Suite 110
Redding, CA 96002
Attention: Richard Hinrichs, (530) 224-4867

*or at*

Linda County Water District
1280 Scales Avenue
Marysville, CA 95901
Attention: Doug Lofton, (530) 743-2043

*******Este informe contiene información muy importante sobre su agua beber.**
**Tradúzcalo ó hable con alguien due lo antinode bien.**

# Appendix F

## DMM Cost Effectiveness Spreadsheets

Conservation Program Designer Studio

LCWD

## Economic Analysis Inputs

| | |
|---|---|
| Real Discount Rate | 2.90% |
| Avoided Water Cost | $ 168 |
| 2020 Population | 16,270 |

## MOU Compliance Inputs

**Residential**

| | |
|---|---|
| Current Number of SFR Accounts | 3527 |
| Current Number of MFR Accounts | 324 |
| 5 Year Average Resale Rate of SFR Households (from Base Year Report) | 5% |
| 5 Year Average Resale Rate of MFR Households (from Base Year Report) | 5% |

**Landscape**

| | |
|---|---|
| Number of Dedicated Irrigation Accounts | 0 |

**CII**

| | |
|---|---|
| Baseline CII Water Use (2008) (AFY) | 500 |
| Current Number of CII Accounts without Dedicated Irrigation Meters | 223 |

## Other Inputs for CB Analysis

**Landscape**

| | |
|---|---|
| Dedicated Irrigation Water Use (AFY) | 0 |

**CII**

| | |
|---|---|
| Number of CII Accounts (2008) | 220 |
| % Indoor Water Use | 60% |

## MOU Compliance Outputs

**Residential**

| | | |
|---|---|---|
| Provide **residential assistance** to an average of 1.5% per year of current SFR and MFR accounts | 53 | SFR surveys/yr |
| | 5 | MFR surveys/yr |
| Provide **landscape water surveys** to an average of 1.5% per year of current SFR accounts | 53 | SFR landscape surveys/yr |
| Provide **HECW rebates** to an average of 1% per year of current SFR accounts | 35 | SFR HECW rebates/yr |
| Provide **HET rebates** to promote toilet replacements at level achieved through a retrofit on resale ordinance | 35.27 | SFR HET rebates/yr |
| | 3.24 | MFR HET rebates/yr |

**Landscape**

| | | |
|---|---|---|
| Develop ETo-based **water budgets** for an average of 9% of dedicated irrigation accounts per year | 0 | Budgets/yr |
| Offer assistance annually to all accounts that are 20% over budget within 6 years of implementing water budgets. | | |
| Provide **irrigation surveys** to an average of 1.5% per year of current CII accounts without dedicated irrigation meters. | 3 | Irrigation surveys/yr |

**CII**

| | | |
|---|---|---|
| **Reduce CII water use** by an average of 1% per year. | 5 | AFY |

Kennedy/Jenks Consultants
Engineers & Scientists

## BMP1: Residential Assistance (Surveys)

**Potential Program Savings**

| | |
|---|---|
| **Worksheet Name:** | 1 |
| **Savings (AFY/Unit)** | 0.045 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.045 |
| **Decay Factor** | 10% |
| **Unit Costs ($/unit)** | $ 312.83 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 58 | | 58 | | 3 | $ 22,588 | $22,588 | $22,588 | $435 | $435 |
| 2012 | 58 | | 110 | | 5 | $ 22,588 | $21,952 | $44,540 | $826 | $803 |
| 2013 | 58 | | 157 | | 7 | $ 22,588 | $21,333 | $65,873 | $1,178 | $1,113 |
| 2014 | 58 | | 199 | | 9 | $ 22,588 | $20,732 | $86,605 | $1,495 | $1,373 |
| 2015 | 58 | | 237 | | 11 | $ 22,588 | $20,148 | $106,753 | $1,781 | $1,588 |
| 2016 | 58 | | 271 | | 12 | $ 22,588 | $19,580 | $126,333 | $2,038 | $1,766 |
| 2017 | 58 | | 301 | | 14 | $ 22,588 | $19,028 | $145,361 | $2,269 | $1,911 |
| 2018 | 58 | | 329 | | 15 | $ 22,588 | $18,492 | $163,853 | $2,477 | $2,027 |
| 2019 | 58 | | 354 | | 16 | $ 22,588 | $17,971 | $181,823 | $2,664 | $2,119 |
| 2020 | 58 | | 376 | | 17 | $ 22,588 | $17,464 | $199,288 | $2,832 | $2,190 |
| 2021 | 0 | | 339 | | 15 | $ - | $0 | $199,288 | $2,549 | $1,915 |
| 2022 | 0 | | 305 | | 14 | $ - | $0 | $199,288 | $2,294 | $1,675 |
| 2023 | 0 | | 274 | | 12 | $ - | $0 | $199,288 | $2,065 | $1,465 |
| 2024 | 0 | | 247 | | 11 | $ - | $0 | $199,288 | $1,858 | $1,281 |
| 2025 | 0 | | 222 | | 10 | $ - | $0 | $199,288 | $1,672 | $1,121 |
| 2026 | 0 | | 200 | | 9 | $ - | $0 | $199,288 | $1,505 | $980 |
| 2027 | 0 | | 180 | | 8 | $ - | $0 | $199,288 | $1,355 | $857 |
| 2028 | 0 | | 162 | | 7 | $ - | $0 | $199,288 | $1,219 | $750 |
| 2029 | 0 | | 146 | | 7 | $ - | $0 | $199,288 | $1,097 | $656 |
| 2030 | 0 | | 131 | | 6 | $ - | $0 | $199,288 | $988 | $574 |
| 2031 | 0 | | 118 | | 5 | $ - | $0 | $199,288 | $889 | $502 |
| 2032 | 0 | | 106 | | 5 | $ - | $0 | $199,288 | $800 | $439 |
| 2033 | 0 | | 96 | | 4 | $ - | $0 | $199,288 | $720 | $384 |
| 2034 | 0 | | 86 | | 4 | $ - | $0 | $199,288 | $648 | $336 |
| 2035 | 0 | | 77 | | 3 | $ - | $0 | $199,288 | $583 | $294 |
| 2036 | 0 | | 66 | | 3 | $ - | $0 | $199,288 | $494 | $242 |
| 2037 | 0 | | 55 | | 2 | $ - | $0 | $199,288 | $413 | $196 |
| 2038 | 0 | | 45 | | 2 | $ - | $0 | $199,288 | $341 | $157 |
| 2039 | 0 | | 37 | | 2 | $ - | $0 | $199,288 | $275 | $124 |
| 2040 | 0 | | 29 | | 1 | $ - | $0 | $199,288 | $216 | $94 |
| 2041 | 0 | | 22 | | 1 | $ - | $0 | $199,288 | $164 | $69 |
| 2042 | 0 | | 15 | | 1 | $ - | $0 | $199,288 | $116 | $48 |
| 2043 | 0 | | 10 | | 0 | $ - | $0 | $199,288 | $73 | $29 |
| 2044 | 0 | | 5 | | 0 | $ - | $0 | $199,288 | $35 | $14 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $199,288 | $0 | $0 |
| **Total** | **578** | | | | **240** | | **$199,288** | | | **$29,527** |

Notes:

| | |
|---|---|
| Benefits/Costs | 0.15 |
| $/AF | $829.48 |

| DWR DMM Review Table | |
|---|---|
| Cost Effectiveness Summary | |
| Total Costs | $199,288 |
| Total Benefits | $29,527 |
| Discount Rate | 2.9% |
| Time Horizon | 25 years |
| Cost of Water ($/AF) | $829 |
| Water Savings (AFY) | 240 |
| Benefits/Costs | 0.15 |

## BMP2: Residential Plumbing retrofit kits

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 2 |
| **Savings (AFY/Unit)** | 0.012 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.012 |
| **Decay Factor** | 30% |
| **Unit Costs ($/unit)** | $ 12.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 58 | | 58 | | 1 | $ 866 | $866 | $866 | $116 | $116 |
| 2012 | 58 | | 98 | | 1 | $ 866 | $842 | $1,709 | $198 | $192 |
| 2013 | 58 | | 127 | | 2 | $ 866 | $818 | $2,527 | $255 | $241 |
| 2014 | 58 | | 146 | | 2 | $ 866 | $795 | $3,322 | $295 | $270 |
| 2015 | 58 | | 160 | | 2 | $ 866 | $773 | $4,095 | $323 | $288 |
| 2016 | 58 | | 170 | | 2 | $ 866 | $751 | $4,846 | $342 | $297 |
| 2017 | 58 | | 177 | | 2 | $ 866 | $730 | $5,576 | $356 | $300 |
| 2018 | 58 | | 181 | | 2 | $ 866 | $709 | $6,285 | $365 | $299 |
| 2019 | 58 | | 185 | | 2 | $ 866 | $689 | $6,975 | $372 | $296 |
| 2020 | 58 | | 187 | | 2 | $ 866 | $670 | $7,645 | $377 | $291 |
| 2021 | 0 | | 131 | | 2 | $ - | $0 | $7,645 | $264 | $198 |
| 2022 | 0 | | 92 | | 1 | $ - | $0 | $7,645 | $185 | $135 |
| 2023 | 0 | | 64 | | 1 | $ - | $0 | $7,645 | $129 | $92 |
| 2024 | 0 | | 45 | | 1 | $ - | $0 | $7,645 | $90 | $62 |
| 2025 | 0 | | 31 | | 0 | $ - | $0 | $7,645 | $63 | $42 |
| 2026 | 0 | | 22 | | 0 | $ - | $0 | $7,645 | $44 | $29 |
| 2027 | 0 | | 15 | | 0 | $ - | $0 | $7,645 | $31 | $20 |
| 2028 | 0 | | 11 | | 0 | $ - | $0 | $7,645 | $22 | $13 |
| 2029 | 0 | | 8 | | 0 | $ - | $0 | $7,645 | $15 | $9 |
| 2030 | 0 | | 5 | | 0 | $ - | $0 | $7,645 | $11 | $6 |
| 2031 | 0 | | 4 | | 0 | $ - | $0 | $7,645 | $7 | $4 |
| 2032 | 0 | | 3 | | 0 | $ - | $0 | $7,645 | $5 | $3 |
| 2033 | 0 | | 2 | | 0 | $ - | $0 | $7,645 | $4 | $2 |
| 2034 | 0 | | 1 | | 0 | $ - | $0 | $7,645 | $3 | $1 |
| 2035 | 0 | | 1 | | 0 | $ - | $0 | $7,645 | $2 | $1 |
| 2036 | 0 | | 1 | | 0 | $ - | $0 | $7,645 | $1 | $1 |
| 2037 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $1 | $0 |
| 2038 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $1 | $0 |
| 2039 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| 2040 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| 2041 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| 2042 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| 2043 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| 2044 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $7,645 | $0 | $0 |
| **Total** | **578** | | | | **23** | | **$7,645** | | | **$3,210** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.42** |
| **$/AF** | **$331.27** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $7,645 |
| **Total Benefits** | $3,210 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $331 |
| **Water Savings (AFY)** | 23 |
| Benefits/Costs | 0.42 |

## BMP5: CII WBICs Rebates

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 4 |
| **Savings (AFY/Unit)** | 0.182 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 1 |
| % Savings | 20% |
| Unit Savings (AFY/unit) | 0.182 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.000 |
| **Decay Factor** | 10% |
| **Unit Costs ($/unit)** | $ 300.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 3 | | 3 | | 1 | $ 1,254 | $1,254 | $1,254 | $102 | $102 |
| 2012 | 3 | | 6 | | 1 | $ 1,254 | $1,219 | $2,473 | $194 | $189 |
| 2013 | 3 | | 9 | | 2 | $ 1,254 | $1,185 | $3,658 | $277 | $262 |
| 2014 | 3 | | 12 | | 2 | $ 1,254 | $1,151 | $4,809 | $351 | $322 |
| 2015 | 3 | | 14 | | 2 | $ 1,254 | $1,119 | $5,928 | $418 | $373 |
| 2016 | 3 | | 16 | | 3 | $ 1,254 | $1,087 | $7,015 | $479 | $415 |
| 2017 | 3 | | 17 | | 3 | $ 1,254 | $1,057 | $8,072 | $533 | $449 |
| 2018 | 3 | | 19 | | 3 | $ 1,254 | $1,027 | $9,099 | $582 | $476 |
| 2019 | 3 | | 20 | | 4 | $ 1,254 | $998 | $10,097 | $626 | $498 |
| 2020 | 3 | | 22 | | 4 | $ 1,254 | $970 | $11,067 | $665 | $515 |
| 2021 | 0 | | 20 | | 4 | $ - | $0 | $11,067 | $599 | $450 |
| 2022 | 0 | | 18 | | 3 | $ - | $0 | $11,067 | $539 | $394 |
| 2023 | 0 | | 16 | | 3 | $ - | $0 | $11,067 | $485 | $344 |
| 2024 | 0 | | 14 | | 3 | $ - | $0 | $11,067 | $437 | $301 |
| 2025 | 0 | | 13 | | 2 | $ - | $0 | $11,067 | $393 | $263 |
| 2026 | 0 | | 12 | | 2 | $ - | $0 | $11,067 | $354 | $230 |
| 2027 | 0 | | 10 | | 2 | $ - | $0 | $11,067 | $318 | $201 |
| 2028 | 0 | | 9 | | 2 | $ - | $0 | $11,067 | $286 | $176 |
| 2029 | 0 | | 8 | | 2 | $ - | $0 | $11,067 | $258 | $154 |
| 2030 | 0 | | 8 | | 1 | $ - | $0 | $11,067 | $232 | $135 |
| 2031 | 0 | | 7 | | 1 | $ - | $0 | $11,067 | $209 | $118 |
| 2032 | 0 | | 6 | | 1 | $ - | $0 | $11,067 | $188 | $103 |
| 2033 | 0 | | 6 | | 1 | $ - | $0 | $11,067 | $169 | $90 |
| 2034 | 0 | | 5 | | 1 | $ - | $0 | $11,067 | $152 | $79 |
| 2035 | 0 | | 4 | | 1 | $ - | $0 | $11,067 | $137 | $69 |
| 2036 | 0 | | 4 | | 1 | $ - | $0 | $11,067 | $116 | $57 |
| 2037 | 0 | | 3 | | 1 | $ - | $0 | $11,067 | $97 | $46 |
| 2038 | 0 | | 3 | | 0 | $ - | $0 | $11,067 | $80 | $37 |
| 2039 | 0 | | 2 | | 0 | $ - | $0 | $11,067 | $65 | $29 |
| 2040 | 0 | | 2 | | 0 | $ - | $0 | $11,067 | $51 | $22 |
| 2041 | 0 | | 1 | | 0 | $ - | $0 | $11,067 | $38 | $16 |
| 2042 | 0 | | 1 | | 0 | $ - | $0 | $11,067 | $27 | $11 |
| 2043 | 0 | | 1 | | 0 | $ - | $0 | $11,067 | $17 | $7 |
| 2044 | 0 | | 0 | | 0 | $ - | $0 | $11,067 | $8 | $3 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $11,067 | $0 | $0 |
| **Total** | **33** | | | | **56** | | **$11,067** | | | **$6,938** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.63** |
| **$/AF** | **$196.04** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $11,067 |
| **Total Benefits** | $6,938 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $196 |
| **Water Savings (AFY)** | 56 |
| Benefits/Costs | 0.63 |

## BMP5: CII WBICs Direct Install

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 5 |
| **Savings (AFY/Unit)** | 0.182 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 1 |
| % Savings | 20% |
| Unit Savings (AFY/unit) | 0.182 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.000 |
| **Decay Factor** | 10% |
| **Unit Costs ($/unit)** | $ 1,000.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 3 | | 3 | | 1 | $ 4,181 | $4,181 | $4,181 | $102 | $102 |
| 2012 | 3 | | 6 | | 1 | $ 4,181 | $4,063 | $8,245 | $194 | $189 |
| 2013 | 3 | | 9 | | 2 | $ 4,181 | $3,949 | $12,194 | $277 | $262 |
| 2014 | 3 | | 12 | | 2 | $ 4,181 | $3,838 | $16,031 | $351 | $322 |
| 2015 | 3 | | 14 | | 2 | $ 4,181 | $3,729 | $19,761 | $418 | $373 |
| 2016 | 3 | | 16 | | 3 | $ 4,181 | $3,624 | $23,385 | $479 | $415 |
| 2017 | 3 | | 17 | | 3 | $ 4,181 | $3,522 | $26,907 | $533 | $449 |
| 2018 | 3 | | 19 | | 3 | $ 4,181 | $3,423 | $30,330 | $582 | $476 |
| 2019 | 3 | | 20 | | 4 | $ 4,181 | $3,326 | $33,657 | $626 | $498 |
| 2020 | 3 | | 22 | | 4 | $ 4,181 | $3,233 | $36,889 | $665 | $515 |
| 2021 | 0 | | 20 | | 4 | $ - | $0 | $36,889 | $599 | $450 |
| 2022 | 0 | | 18 | | 3 | $ - | $0 | $36,889 | $539 | $394 |
| 2023 | 0 | | 16 | | 3 | $ - | $0 | $36,889 | $485 | $344 |
| 2024 | 0 | | 14 | | 3 | $ - | $0 | $36,889 | $437 | $301 |
| 2025 | 0 | | 13 | | 2 | $ - | $0 | $36,889 | $393 | $263 |
| 2026 | 0 | | 12 | | 2 | $ - | $0 | $36,889 | $354 | $230 |
| 2027 | 0 | | 10 | | 2 | $ - | $0 | $36,889 | $318 | $201 |
| 2028 | 0 | | 9 | | 2 | $ - | $0 | $36,889 | $286 | $176 |
| 2029 | 0 | | 8 | | 2 | $ - | $0 | $36,889 | $258 | $154 |
| 2030 | 0 | | 8 | | 1 | $ - | $0 | $36,889 | $232 | $135 |
| 2031 | 0 | | 7 | | 1 | $ - | $0 | $36,889 | $209 | $118 |
| 2032 | 0 | | 6 | | 1 | $ - | $0 | $36,889 | $188 | $103 |
| 2033 | 0 | | 6 | | 1 | $ - | $0 | $36,889 | $169 | $90 |
| 2034 | 0 | | 5 | | 1 | $ - | $0 | $36,889 | $152 | $79 |
| 2035 | 0 | | 4 | | 1 | $ - | $0 | $36,889 | $137 | $69 |
| 2036 | 0 | | 4 | | 1 | $ - | $0 | $36,889 | $116 | $57 |
| 2037 | 0 | | 3 | | 1 | $ - | $0 | $36,889 | $97 | $46 |
| 2038 | 0 | | 3 | | 0 | $ - | $0 | $36,889 | $80 | $37 |
| 2039 | 0 | | 2 | | 0 | $ - | $0 | $36,889 | $65 | $29 |
| 2040 | 0 | | 2 | | 0 | $ - | $0 | $36,889 | $51 | $22 |
| 2041 | 0 | | 1 | | 0 | $ - | $0 | $36,889 | $38 | $16 |
| 2042 | 0 | | 1 | | 0 | $ - | $0 | $36,889 | $27 | $11 |
| 2043 | 0 | | 1 | | 0 | $ - | $0 | $36,889 | $17 | $7 |
| 2044 | 0 | | 0 | | 0 | $ - | $0 | $36,889 | $8 | $3 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $36,889 | $0 | $0 |
| **Total** | **33** | | | | **56** | | **$36,889** | | | **$6,938** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.19** |
| **$/AF** | **$653.46** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $36,889 |
| **Total Benefits** | $6,938 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $653 |
| **Water Savings (AFY)** | 56 |
| Benefits/Costs | 0.19 |

## BMP5: CII Precision Nozzles Distr.

**Potential Program Savings**

| | |
|---|---|
| **Worksheet Name:** | 6 |
| **Savings (AFY/Unit)** | 0.002 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.002 |
| **Decay Factor** | 20% |
| **Unit Costs ($/unit)** | $ 4.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 502 | | 502 | | 1 | $ 2,509 | $2,509 | $2,509 | $169 | $169 |
| 2012 | 502 | | 903 | | 2 | $ 2,509 | $2,438 | $4,947 | $303 | $295 |
| 2013 | 502 | | 1,224 | | 2 | $ 2,509 | $2,369 | $7,316 | $411 | $388 |
| 2014 | 502 | | 1,481 | | 3 | $ 2,509 | $2,303 | $9,619 | $498 | $457 |
| 2015 | 502 | | 1,687 | | 3 | $ 2,509 | $2,238 | $11,856 | $567 | $505 |
| 2016 | 502 | | 1,851 | | 4 | $ 2,509 | $2,175 | $14,031 | $622 | $539 |
| 2017 | 502 | | 1,983 | | 4 | $ 2,509 | $2,113 | $16,144 | $666 | $561 |
| 2018 | 502 | | 2,088 | | 4 | $ 2,509 | $2,054 | $18,198 | $702 | $574 |
| 2019 | 502 | | 2,172 | | 4 | $ 2,509 | $1,996 | $20,194 | $730 | $581 |
| 2020 | 502 | | 2,239 | | 4 | $ 2,509 | $1,940 | $22,134 | $752 | $582 |
| 2021 | 0 | | 1,792 | | 4 | $ - | $0 | $22,134 | $602 | $452 |
| 2022 | 0 | | 1,433 | | 3 | $ - | $0 | $22,134 | $482 | $352 |
| 2023 | 0 | | 1,147 | | 2 | $ - | $0 | $22,134 | $385 | $273 |
| 2024 | 0 | | 917 | | 2 | $ - | $0 | $22,134 | $308 | $213 |
| 2025 | 0 | | 734 | | 1 | $ - | $0 | $22,134 | $247 | $165 |
| 2026 | 0 | | 587 | | 1 | $ - | $0 | $22,134 | $197 | $128 |
| 2027 | 0 | | 470 | | 1 | $ - | $0 | $22,134 | $158 | $100 |
| 2028 | 0 | | 376 | | 1 | $ - | $0 | $22,134 | $126 | $78 |
| 2029 | 0 | | 301 | | 1 | $ - | $0 | $22,134 | $101 | $60 |
| 2030 | 0 | | 240 | | 0 | $ - | $0 | $22,134 | $81 | $47 |
| 2031 | 0 | | 192 | | 0 | $ - | $0 | $22,134 | $65 | $36 |
| 2032 | 0 | | 154 | | 0 | $ - | $0 | $22,134 | $52 | $28 |
| 2033 | 0 | | 123 | | 0 | $ - | $0 | $22,134 | $41 | $22 |
| 2034 | 0 | | 98 | | 0 | $ - | $0 | $22,134 | $33 | $17 |
| 2035 | 0 | | 79 | | 0 | $ - | $0 | $22,134 | $26 | $13 |
| 2036 | 0 | | 61 | | 0 | $ - | $0 | $22,134 | $21 | $10 |
| 2037 | 0 | | 47 | | 0 | $ - | $0 | $22,134 | $16 | $8 |
| 2038 | 0 | | 36 | | 0 | $ - | $0 | $22,134 | $12 | $6 |
| 2039 | 0 | | 27 | | 0 | $ - | $0 | $22,134 | $9 | $4 |
| 2040 | 0 | | 19 | | 0 | $ - | $0 | $22,134 | $7 | $3 |
| 2041 | 0 | | 14 | | 0 | $ - | $0 | $22,134 | $5 | $2 |
| 2042 | 0 | | 9 | | 0 | $ - | $0 | $22,134 | $3 | $1 |
| 2043 | 0 | | 5 | | 0 | $ - | $0 | $22,134 | $2 | $1 |
| 2044 | 0 | | 2 | | 0 | $ - | $0 | $22,134 | $1 | $0 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $22,134 | $0 | $0 |
| **Total** | **5,018** | | | | **50** | | **$22,134** | | | **$6,671** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.30** |
| **$/AF** | **$442.80** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $22,134 |
| **Total Benefits** | $6,671 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $443 |
| **Water Savings (AFY)** | 50 |
| Benefits/Costs | 0.30 |

## BMP6: Residential HE Washer Rebates

**Potential Program Savings**

| | |
|---|---|
| **Worksheet Name:** | 3 |
| **Savings (AFY/Unit)** | 0.031 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.031 |
| **Decay Factor** | 8% |
| **Unit Costs ($/unit)** | $ 150.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 35 | | 35 | | 1 | $ 6,613 | $6,613 | $6,613 | $186 | $186 |
| 2012 | 35 | | 68 | | 2 | $ 6,613 | $6,427 | $13,040 | $357 | $347 |
| 2013 | 35 | | 98 | | 3 | $ 6,613 | $6,246 | $19,286 | $514 | $486 |
| 2014 | 35 | | 125 | | 4 | $ 6,613 | $6,070 | $25,355 | $659 | $605 |
| 2015 | 35 | | 150 | | 5 | $ 6,613 | $5,899 | $31,254 | $792 | $706 |
| 2016 | 35 | | 174 | | 5 | $ 6,613 | $5,732 | $36,986 | $915 | $793 |
| 2017 | 35 | | 195 | | 6 | $ 6,613 | $5,571 | $42,557 | $1,027 | $865 |
| 2018 | 35 | | 215 | | 7 | $ 6,613 | $5,414 | $47,970 | $1,131 | $926 |
| 2019 | 35 | | 233 | | 7 | $ 6,613 | $5,261 | $53,232 | $1,226 | $976 |
| 2020 | 35 | | 249 | | 8 | $ 6,613 | $5,113 | $58,345 | $1,314 | $1,016 |
| 2021 | 0 | | 229 | | 7 | $ - | $0 | $58,345 | $1,209 | $908 |
| 2022 | 0 | | 211 | | 7 | $ - | $0 | $58,345 | $1,112 | $812 |
| 2023 | 0 | | 194 | | 6 | $ - | $0 | $58,345 | $1,023 | $726 |
| 2024 | 0 | | 179 | | 6 | $ - | $0 | $58,345 | $941 | $649 |
| 2025 | 0 | | 164 | | 5 | $ - | $0 | $58,345 | $866 | $580 |
| 2026 | 0 | | 151 | | 5 | $ - | $0 | $58,345 | $797 | $519 |
| 2027 | 0 | | 139 | | 4 | $ - | $0 | $58,345 | $733 | $464 |
| 2028 | 0 | | 128 | | 4 | $ - | $0 | $58,345 | $674 | $415 |
| 2029 | 0 | | 118 | | 4 | $ - | $0 | $58,345 | $620 | $371 |
| 2030 | 0 | | 108 | | 3 | $ - | $0 | $58,345 | $571 | $332 |
| 2031 | 0 | | 100 | | 3 | $ - | $0 | $58,345 | $525 | $296 |
| 2032 | 0 | | 92 | | 3 | $ - | $0 | $58,345 | $483 | $265 |
| 2033 | 0 | | 84 | | 3 | $ - | $0 | $58,345 | $444 | $237 |
| 2034 | 0 | | 78 | | 2 | $ - | $0 | $58,345 | $409 | $212 |
| 2035 | 0 | | 71 | | 2 | $ - | $0 | $58,345 | $376 | $189 |
| 2036 | 0 | | 61 | | 2 | $ - | $0 | $58,345 | $323 | $158 |
| 2037 | 0 | | 52 | | 2 | $ - | $0 | $58,345 | $274 | $130 |
| 2038 | 0 | | 43 | | 1 | $ - | $0 | $58,345 | $229 | $106 |
| 2039 | 0 | | 36 | | 1 | $ - | $0 | $58,345 | $188 | $84 |
| 2040 | 0 | | 28 | | 1 | $ - | $0 | $58,345 | $149 | $65 |
| 2041 | 0 | | 22 | | 1 | $ - | $0 | $58,345 | $114 | $49 |
| 2042 | 0 | | 16 | | 0 | $ - | $0 | $58,345 | $82 | $34 |
| 2043 | 0 | | 10 | | 0 | $ - | $0 | $58,345 | $52 | $21 |
| 2044 | 0 | | 5 | | 0 | $ - | $0 | $58,345 | $25 | $10 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $58,345 | $0 | $0 |
| **Total** | **353** | | | | **121** | | **$58,345** | | | **$14,538** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.25** |
| **$/AF** | **$481.84** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $58,345 |
| **Total Benefits** | $14,538 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $482 |
| **Water Savings (AFY)** | 121 |
| Benefits/Costs | 0.25 |

## BMP9: CII Indoor Surveys

**Potential Program Savings**

| | |
|---|---|
| **Worksheet Name:** | 9 |
| **Savings (AFY/Unit)** | 0.164 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 1 |
| % Savings | 12% |
| Unit Savings (AFY/unit) | 0.164 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.000 |
| **Decay Factor** | 10% |
| **Unit Costs ($/unit)** | $ 12,000.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 31 | | 31 | | 5 | $ 458,333 | $458,333 | $458,333 | $840 | $840 |
| 2012 | 31 | | 58 | | 10 | $ 458,333 | $445,416 | $903,750 | $1,596 | $1,551 |
| 2013 | 31 | | 83 | | 14 | $ 458,333 | $432,863 | $1,336,613 | $2,276 | $2,150 |
| 2014 | 31 | | 105 | | 17 | $ 458,333 | $420,664 | $1,757,277 | $2,889 | $2,651 |
| 2015 | 31 | | 125 | | 20 | $ 458,333 | $408,809 | $2,166,085 | $3,440 | $3,068 |
| 2016 | 31 | | 143 | | 23 | $ 458,333 | $397,287 | $2,563,373 | $3,936 | $3,412 |
| 2017 | 31 | | 159 | | 26 | $ 458,333 | $386,091 | $2,949,463 | $4,382 | $3,692 |
| 2018 | 31 | | 174 | | 28 | $ 458,333 | $375,209 | $3,324,673 | $4,784 | $3,916 |
| 2019 | 31 | | 187 | | 31 | $ 458,333 | $364,635 | $3,689,308 | $5,146 | $4,094 |
| 2020 | 31 | | 199 | | 33 | $ 458,333 | $354,359 | $4,043,666 | $5,471 | $4,230 |
| 2021 | 0 | | 179 | | 29 | $ - | $0 | $4,043,666 | $4,924 | $3,700 |
| 2022 | 0 | | 161 | | 26 | $ - | $0 | $4,043,666 | $4,432 | $3,236 |
| 2023 | 0 | | 145 | | 24 | $ - | $0 | $4,043,666 | $3,988 | $2,830 |
| 2024 | 0 | | 131 | | 21 | $ - | $0 | $4,043,666 | $3,590 | $2,475 |
| 2025 | 0 | | 118 | | 19 | $ - | $0 | $4,043,666 | $3,231 | $2,165 |
| 2026 | 0 | | 106 | | 17 | $ - | $0 | $4,043,666 | $2,908 | $1,894 |
| 2027 | 0 | | 95 | | 16 | $ - | $0 | $4,043,666 | $2,617 | $1,656 |
| 2028 | 0 | | 86 | | 14 | $ - | $0 | $4,043,666 | $2,355 | $1,449 |
| 2029 | 0 | | 77 | | 13 | $ - | $0 | $4,043,666 | $2,120 | $1,267 |
| 2030 | 0 | | 69 | | 11 | $ - | $0 | $4,043,666 | $1,908 | $1,108 |
| 2031 | 0 | | 62 | | 10 | $ - | $0 | $4,043,666 | $1,717 | $969 |
| 2032 | 0 | | 56 | | 9 | $ - | $0 | $4,043,666 | $1,545 | $848 |
| 2033 | 0 | | 51 | | 8 | $ - | $0 | $4,043,666 | $1,391 | $741 |
| 2034 | 0 | | 46 | | 7 | $ - | $0 | $4,043,666 | $1,252 | $649 |
| 2035 | 0 | | 41 | | 7 | $ - | $0 | $4,043,666 | $1,126 | $567 |
| 2036 | 0 | | 35 | | 6 | $ - | $0 | $4,043,666 | $954 | $467 |
| 2037 | 0 | | 29 | | 5 | $ - | $0 | $4,043,666 | $798 | $379 |
| 2038 | 0 | | 24 | | 4 | $ - | $0 | $4,043,666 | $658 | $304 |
| 2039 | 0 | | 19 | | 3 | $ - | $0 | $4,043,666 | $532 | $239 |
| 2040 | 0 | | 15 | | 2 | $ - | $0 | $4,043,666 | $418 | $183 |
| 2041 | 0 | | 11 | | 2 | $ - | $0 | $4,043,666 | $316 | $134 |
| 2042 | 0 | | 8 | | 1 | $ - | $0 | $4,043,666 | $224 | $92 |
| 2043 | 0 | | 5 | | 1 | $ - | $0 | $4,043,666 | $141 | $57 |
| 2044 | 0 | | 2 | | 0 | $ - | $0 | $4,043,666 | $67 | $26 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $4,043,666 | $0 | $0 |
| **Total** | **306** | | | | **464** | | **$4,043,666** | | | **$57,038** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.01** |
| **$/AF** | **$8,712.82** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $4,043,666 |
| **Total Benefits** | $57,038 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $8,713 |
| **Water Savings (AFY)** | 464 |
| Benefits/Costs | 0.01 |

## BMP9: CII Performance Based Program

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 10 |
| **Savings (AFY/Unit)** | 1.000 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 1.000 |
| **Decay Factor** | 10% |
| **Unit Costs ($/unit)** | $ 975.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 5 | | 5 | | 5 | $ 6,094 | $6,094 | $6,094 | $840 | $840 |
| 2012 | 5 | | 10 | | 10 | $ 6,094 | $5,922 | $12,016 | $1,596 | $1,551 |
| 2013 | 5 | | 14 | | 14 | $ 6,094 | $5,755 | $17,771 | $2,276 | $2,150 |
| 2014 | 5 | | 17 | | 17 | $ 6,094 | $5,593 | $23,364 | $2,889 | $2,651 |
| 2015 | 5 | | 20 | | 20 | $ 6,094 | $5,435 | $28,799 | $3,440 | $3,068 |
| 2016 | 5 | | 23 | | 23 | $ 6,094 | $5,282 | $34,081 | $3,936 | $3,412 |
| 2017 | 5 | | 26 | | 26 | $ 6,094 | $5,133 | $39,214 | $4,382 | $3,692 |
| 2018 | 5 | | 28 | | 28 | $ 6,094 | $4,989 | $44,203 | $4,784 | $3,916 |
| 2019 | 5 | | 31 | | 31 | $ 6,094 | $4,848 | $49,051 | $5,146 | $4,094 |
| 2020 | 5 | | 33 | | 33 | $ 6,094 | $4,711 | $53,762 | $5,471 | $4,230 |
| 2021 | 0 | | 29 | | 29 | $ - | $0 | $53,762 | $4,924 | $3,700 |
| 2022 | 0 | | 26 | | 26 | $ - | $0 | $53,762 | $4,432 | $3,236 |
| 2023 | 0 | | 24 | | 24 | $ - | $0 | $53,762 | $3,988 | $2,830 |
| 2024 | 0 | | 21 | | 21 | $ - | $0 | $53,762 | $3,590 | $2,475 |
| 2025 | 0 | | 19 | | 19 | $ - | $0 | $53,762 | $3,231 | $2,165 |
| 2026 | 0 | | 17 | | 17 | $ - | $0 | $53,762 | $2,908 | $1,894 |
| 2027 | 0 | | 16 | | 16 | $ - | $0 | $53,762 | $2,617 | $1,656 |
| 2028 | 0 | | 14 | | 14 | $ - | $0 | $53,762 | $2,355 | $1,449 |
| 2029 | 0 | | 13 | | 13 | $ - | $0 | $53,762 | $2,120 | $1,267 |
| 2030 | 0 | | 11 | | 11 | $ - | $0 | $53,762 | $1,908 | $1,108 |
| 2031 | 0 | | 10 | | 10 | $ - | $0 | $53,762 | $1,717 | $969 |
| 2032 | 0 | | 9 | | 9 | $ - | $0 | $53,762 | $1,545 | $848 |
| 2033 | 0 | | 8 | | 8 | $ - | $0 | $53,762 | $1,391 | $741 |
| 2034 | 0 | | 7 | | 7 | $ - | $0 | $53,762 | $1,252 | $649 |
| 2035 | 0 | | 7 | | 7 | $ - | $0 | $53,762 | $1,126 | $567 |
| 2036 | 0 | | 6 | | 6 | $ - | $0 | $53,762 | $954 | $467 |
| 2037 | 0 | | 5 | | 5 | $ - | $0 | $53,762 | $798 | $379 |
| 2038 | 0 | | 4 | | 4 | $ - | $0 | $53,762 | $658 | $304 |
| 2039 | 0 | | 3 | | 3 | $ - | $0 | $53,762 | $532 | $239 |
| 2040 | 0 | | 2 | | 2 | $ - | $0 | $53,762 | $418 | $183 |
| 2041 | 0 | | 2 | | 2 | $ - | $0 | $53,762 | $316 | $134 |
| 2042 | 0 | | 1 | | 1 | $ - | $0 | $53,762 | $224 | $92 |
| 2043 | 0 | | 1 | | 1 | $ - | $0 | $53,762 | $141 | $57 |
| 2044 | 0 | | 0 | | 0 | $ - | $0 | $53,762 | $67 | $26 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $53,762 | $0 | $0 |
| **Total** | **50** | | | | **464** | | **$53,762** | | | **$57,038** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **1.06** |
| **$/AF** | **$115.84** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $53,762 |
| **Total Benefits** | $57,038 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $116 |
| **Water Savings (AFY)** | 464 |
| Benefits/Costs | 1.06 |

## BMP9: CII HE Washer Rebates

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 11 |
| **Savings (AFY/Unit)** | 0.074 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.074 |
| **Decay Factor** | 8% |
| **Unit Costs ($/unit)** | $ 150.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 68 | | 68 | | 5 | $ 12,728 | $12,728 | $12,728 | $840 | $840 |
| 2012 | 68 | | 130 | | 10 | $ 12,728 | $12,369 | $25,097 | $1,613 | $1,567 |
| 2013 | 68 | | 188 | | 14 | $ 12,728 | $12,020 | $37,117 | $2,324 | $2,195 |
| 2014 | 68 | | 241 | | 18 | $ 12,728 | $11,682 | $48,799 | $2,978 | $2,733 |
| 2015 | 68 | | 289 | | 21 | $ 12,728 | $11,352 | $60,151 | $3,580 | $3,193 |
| 2016 | 68 | | 334 | | 25 | $ 12,728 | $11,032 | $71,184 | $4,133 | $3,583 |
| 2017 | 68 | | 375 | | 28 | $ 12,728 | $10,722 | $81,905 | $4,643 | $3,911 |
| 2018 | 68 | | 413 | | 30 | $ 12,728 | $10,419 | $92,324 | $5,111 | $4,184 |
| 2019 | 68 | | 448 | | 33 | $ 12,728 | $10,126 | $102,450 | $5,542 | $4,409 |
| 2020 | 68 | | 480 | | 35 | $ 12,728 | $9,840 | $112,291 | $5,939 | $4,592 |
| 2021 | 0 | | 442 | | 33 | $ - | $0 | $112,291 | $5,464 | $4,105 |
| 2022 | 0 | | 406 | | 30 | $ - | $0 | $112,291 | $5,027 | $3,670 |
| 2023 | 0 | | 374 | | 28 | $ - | $0 | $112,291 | $4,625 | $3,282 |
| 2024 | 0 | | 344 | | 25 | $ - | $0 | $112,291 | $4,255 | $2,934 |
| 2025 | 0 | | 316 | | 23 | $ - | $0 | $112,291 | $3,914 | $2,623 |
| 2026 | 0 | | 291 | | 21 | $ - | $0 | $112,291 | $3,601 | $2,345 |
| 2027 | 0 | | 268 | | 20 | $ - | $0 | $112,291 | $3,313 | $2,097 |
| 2028 | 0 | | 246 | | 18 | $ - | $0 | $112,291 | $3,048 | $1,875 |
| 2029 | 0 | | 227 | | 17 | $ - | $0 | $112,291 | $2,804 | $1,676 |
| 2030 | 0 | | 208 | | 15 | $ - | $0 | $112,291 | $2,580 | $1,499 |
| 2031 | 0 | | 192 | | 14 | $ - | $0 | $112,291 | $2,373 | $1,340 |
| 2032 | 0 | | 176 | | 13 | $ - | $0 | $112,291 | $2,184 | $1,198 |
| 2033 | 0 | | 162 | | 12 | $ - | $0 | $112,291 | $2,009 | $1,071 |
| 2034 | 0 | | 149 | | 11 | $ - | $0 | $112,291 | $1,848 | $958 |
| 2035 | 0 | | 137 | | 10 | $ - | $0 | $112,291 | $1,700 | $856 |
| 2036 | 0 | | 118 | | 9 | $ - | $0 | $112,291 | $1,460 | $714 |
| 2037 | 0 | | 100 | | 7 | $ - | $0 | $112,291 | $1,239 | $589 |
| 2038 | 0 | | 84 | | 6 | $ - | $0 | $112,291 | $1,035 | $478 |
| 2039 | 0 | | 69 | | 5 | $ - | $0 | $112,291 | $848 | $381 |
| 2040 | 0 | | 55 | | 4 | $ - | $0 | $112,291 | $675 | $295 |
| 2041 | 0 | | 42 | | 3 | $ - | $0 | $112,291 | $517 | $219 |
| 2042 | 0 | | 30 | | 2 | $ - | $0 | $112,291 | $371 | $153 |
| 2043 | 0 | | 19 | | 1 | $ - | $0 | $112,291 | $237 | $95 |
| 2044 | 0 | | 9 | | 1 | $ - | $0 | $112,291 | $114 | $44 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $112,291 | $0 | $0 |
| **Total** | **679** | | | | **547** | | **$112,291** | | | **$65,704** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.59** |
| **$/AF** | **$205.18** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $112,291 |
| **Total Benefits** | $65,704 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $205 |
| **Water Savings (AFY)** | 547 |
| Benefits/Costs | 0.59 |

## BMP9: CII HET Rebates

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 12 |
| **Savings (AFY/Unit)** | 0.043 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.043 |
| **Decay Factor** | 4% |
| **Unit Costs ($/unit)** | $ 162.50 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 117 | | 117 | | 5 | $ 23,859 | $23,859 | $23,859 | $840 | $840 |
| 2012 | 117 | | 230 | | 10 | $ 23,859 | $23,186 | $47,045 | $1,646 | $1,600 |
| 2013 | 117 | | 338 | | 14 | $ 23,859 | $22,533 | $69,578 | $2,421 | $2,286 |
| 2014 | 117 | | 442 | | 19 | $ 23,859 | $21,898 | $91,476 | $3,164 | $2,904 |
| 2015 | 117 | | 542 | | 23 | $ 23,859 | $21,281 | $112,756 | $3,877 | $3,458 |
| 2016 | 117 | | 638 | | 27 | $ 23,859 | $20,681 | $133,437 | $4,562 | $3,954 |
| 2017 | 117 | | 730 | | 31 | $ 23,859 | $20,098 | $153,535 | $5,220 | $4,397 |
| 2018 | 117 | | 818 | | 35 | $ 23,859 | $19,532 | $173,067 | $5,851 | $4,790 |
| 2019 | 117 | | 903 | | 38 | $ 23,859 | $18,981 | $192,048 | $6,457 | $5,137 |
| 2020 | 117 | | 984 | | 42 | $ 23,859 | $18,446 | $210,494 | $7,039 | $5,442 |
| 2021 | 0 | | 945 | | 40 | $ - | $0 | $210,494 | $6,757 | $5,077 |
| 2022 | 0 | | 907 | | 39 | $ - | $0 | $210,494 | $6,487 | $4,736 |
| 2023 | 0 | | 871 | | 37 | $ - | $0 | $210,494 | $6,227 | $4,419 |
| 2024 | 0 | | 836 | | 36 | $ - | $0 | $210,494 | $5,978 | $4,123 |
| 2025 | 0 | | 802 | | 34 | $ - | $0 | $210,494 | $5,739 | $3,846 |
| 2026 | 0 | | 770 | | 33 | $ - | $0 | $210,494 | $5,509 | $3,588 |
| 2027 | 0 | | 740 | | 31 | $ - | $0 | $210,494 | $5,289 | $3,348 |
| 2028 | 0 | | 710 | | 30 | $ - | $0 | $210,494 | $5,078 | $3,123 |
| 2029 | 0 | | 682 | | 29 | $ - | $0 | $210,494 | $4,874 | $2,914 |
| 2030 | 0 | | 654 | | 28 | $ - | $0 | $210,494 | $4,679 | $2,718 |
| 2031 | 0 | | 628 | | 27 | $ - | $0 | $210,494 | $4,492 | $2,536 |
| 2032 | 0 | | 603 | | 26 | $ - | $0 | $210,494 | $4,313 | $2,366 |
| 2033 | 0 | | 579 | | 25 | $ - | $0 | $210,494 | $4,140 | $2,207 |
| 2034 | 0 | | 556 | | 24 | $ - | $0 | $210,494 | $3,974 | $2,059 |
| 2035 | 0 | | 534 | | 23 | $ - | $0 | $210,494 | $3,815 | $1,921 |
| 2036 | 0 | | 470 | | 20 | $ - | $0 | $210,494 | $3,360 | $1,644 |
| 2037 | 0 | | 409 | | 17 | $ - | $0 | $210,494 | $2,923 | $1,390 |
| 2038 | 0 | | 350 | | 15 | $ - | $0 | $210,494 | $2,503 | $1,157 |
| 2039 | 0 | | 294 | | 13 | $ - | $0 | $210,494 | $2,100 | $943 |
| 2040 | 0 | | 240 | | 10 | $ - | $0 | $210,494 | $1,714 | $748 |
| 2041 | 0 | | 188 | | 8 | $ - | $0 | $210,494 | $1,342 | $569 |
| 2042 | 0 | | 138 | | 6 | $ - | $0 | $210,494 | $986 | $406 |
| 2043 | 0 | | 90 | | 4 | $ - | $0 | $210,494 | $644 | $258 |
| 2044 | 0 | | 44 | | 2 | $ - | $0 | $210,494 | $315 | $123 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $210,494 | $0 | $0 |
| **Total** | **1,175** | | | | **800** | | **$210,494** | | | **$91,029** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.43** |
| **$/AF** | **$263.28** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $210,494 |
| **Total Benefits** | $91,029 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $263 |
| **Water Savings (AFY)** | 800 |
| Benefits/Costs | 0.43 |

## BMP9: CII HE Urinal Rebates

**Potential Program Savings**

| | |
|---|---|
| **Worksheet Name:** | 13 |
| **Savings (AFY/Unit)** | 0.069 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.069 |
| **Decay Factor** | 3% |
| **Unit Costs ($/unit)** | $ 450.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 72 | | 72 | | 5 | $ 40,495 | $40,495 | $40,495 | $840 | $840 |
| 2012 | 72 | | 142 | | 10 | $ 40,495 | $39,353 | $79,848 | $1,655 | $1,608 |
| 2013 | 72 | | 210 | | 15 | $ 40,495 | $38,244 | $118,092 | $2,445 | $2,309 |
| 2014 | 72 | | 275 | | 19 | $ 40,495 | $37,166 | $155,259 | $3,212 | $2,948 |
| 2015 | 72 | | 339 | | 24 | $ 40,495 | $36,119 | $191,378 | $3,955 | $3,528 |
| 2016 | 72 | | 401 | | 28 | $ 40,495 | $35,101 | $226,479 | $4,677 | $4,054 |
| 2017 | 72 | | 461 | | 32 | $ 40,495 | $34,112 | $260,591 | $5,376 | $4,529 |
| 2018 | 72 | | 519 | | 36 | $ 40,495 | $33,150 | $293,741 | $6,055 | $4,957 |
| 2019 | 72 | | 575 | | 40 | $ 40,495 | $32,216 | $325,957 | $6,714 | $5,341 |
| 2020 | 72 | | 630 | | 44 | $ 40,495 | $31,308 | $357,266 | $7,352 | $5,684 |
| 2021 | 0 | | 611 | | 42 | $ - | $0 | $357,266 | $7,132 | $5,358 |
| 2022 | 0 | | 593 | | 41 | $ - | $0 | $357,266 | $6,918 | $5,051 |
| 2023 | 0 | | 575 | | 40 | $ - | $0 | $357,266 | $6,710 | $4,761 |
| 2024 | 0 | | 558 | | 39 | $ - | $0 | $357,266 | $6,509 | $4,488 |
| 2025 | 0 | | 541 | | 38 | $ - | $0 | $357,266 | $6,314 | $4,231 |
| 2026 | 0 | | 525 | | 36 | $ - | $0 | $357,266 | $6,124 | $3,989 |
| 2027 | 0 | | 509 | | 35 | $ - | $0 | $357,266 | $5,940 | $3,760 |
| 2028 | 0 | | 494 | | 34 | $ - | $0 | $357,266 | $5,762 | $3,544 |
| 2029 | 0 | | 479 | | 33 | $ - | $0 | $357,266 | $5,589 | $3,341 |
| 2030 | 0 | | 465 | | 32 | $ - | $0 | $357,266 | $5,422 | $3,149 |
| 2031 | 0 | | 451 | | 31 | $ - | $0 | $357,266 | $5,259 | $2,969 |
| 2032 | 0 | | 437 | | 30 | $ - | $0 | $357,266 | $5,101 | $2,799 |
| 2033 | 0 | | 424 | | 29 | $ - | $0 | $357,266 | $4,948 | $2,638 |
| 2034 | 0 | | 411 | | 29 | $ - | $0 | $357,266 | $4,800 | $2,487 |
| 2035 | 0 | | 399 | | 28 | $ - | $0 | $357,266 | $4,656 | $2,344 |
| 2036 | 0 | | 353 | | 25 | $ - | $0 | $357,266 | $4,124 | $2,018 |
| 2037 | 0 | | 309 | | 21 | $ - | $0 | $357,266 | $3,608 | $1,716 |
| 2038 | 0 | | 266 | | 18 | $ - | $0 | $357,266 | $3,107 | $1,436 |
| 2039 | 0 | | 225 | | 16 | $ - | $0 | $357,266 | $2,622 | $1,178 |
| 2040 | 0 | | 184 | | 13 | $ - | $0 | $357,266 | $2,151 | $939 |
| 2041 | 0 | | 145 | | 10 | $ - | $0 | $357,266 | $1,694 | $719 |
| 2042 | 0 | | 107 | | 7 | $ - | $0 | $357,266 | $1,251 | $516 |
| 2043 | 0 | | 70 | | 5 | $ - | $0 | $357,266 | $821 | $329 |
| 2044 | 0 | | 35 | | 2 | $ - | $0 | $357,266 | $404 | $157 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $357,266 | $0 | $0 |
| **Total** | **720** | | | | **888** | | **$357,266** | | | **$99,716** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.28** |
| **$/AF** | **$402.16** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $357,266 |
| **Total Benefits** | $99,716 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $402 |
| **Water Savings (AFY)** | 888 |
| Benefits/Costs | 0.28 |

## BMP9: CII ULV Urinal Rebates

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 14 |
| **Savings (AFY/Unit)** | 0.081 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.081 |
| **Decay Factor** | 3% |
| **Unit Costs ($/unit)** | $ 450.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 62 | | 62 | | 5 | $ 34,870 | $34,870 | $34,870 | $840 | $840 |
| 2012 | 62 | | 122 | | 10 | $ 34,870 | $33,888 | $68,758 | $1,655 | $1,608 |
| 2013 | 62 | | 180 | | 15 | $ 34,870 | $32,933 | $101,691 | $2,445 | $2,309 |
| 2014 | 62 | | 237 | | 19 | $ 34,870 | $32,004 | $133,695 | $3,212 | $2,948 |
| 2015 | 62 | | 292 | | 24 | $ 34,870 | $31,102 | $164,798 | $3,955 | $3,528 |
| 2016 | 62 | | 345 | | 28 | $ 34,870 | $30,226 | $195,023 | $4,677 | $4,054 |
| 2017 | 62 | | 397 | | 32 | $ 34,870 | $29,374 | $224,398 | $5,376 | $4,529 |
| 2018 | 62 | | 447 | | 36 | $ 34,870 | $28,546 | $252,944 | $6,055 | $4,957 |
| 2019 | 62 | | 495 | | 40 | $ 34,870 | $27,742 | $280,686 | $6,714 | $5,341 |
| 2020 | 62 | | 543 | | 44 | $ 34,870 | $26,960 | $307,645 | $7,352 | $5,684 |
| 2021 | 0 | | 526 | | 42 | $ - | $0 | $307,645 | $7,132 | $5,358 |
| 2022 | 0 | | 511 | | 41 | $ - | $0 | $307,645 | $6,918 | $5,051 |
| 2023 | 0 | | 495 | | 40 | $ - | $0 | $307,645 | $6,710 | $4,761 |
| 2024 | 0 | | 480 | | 39 | $ - | $0 | $307,645 | $6,509 | $4,488 |
| 2025 | 0 | | 466 | | 38 | $ - | $0 | $307,645 | $6,314 | $4,231 |
| 2026 | 0 | | 452 | | 36 | $ - | $0 | $307,645 | $6,124 | $3,989 |
| 2027 | 0 | | 438 | | 35 | $ - | $0 | $307,645 | $5,940 | $3,760 |
| 2028 | 0 | | 425 | | 34 | $ - | $0 | $307,645 | $5,762 | $3,544 |
| 2029 | 0 | | 412 | | 33 | $ - | $0 | $307,645 | $5,589 | $3,341 |
| 2030 | 0 | | 400 | | 32 | $ - | $0 | $307,645 | $5,422 | $3,149 |
| 2031 | 0 | | 388 | | 31 | $ - | $0 | $307,645 | $5,259 | $2,969 |
| 2032 | 0 | | 376 | | 30 | $ - | $0 | $307,645 | $5,101 | $2,799 |
| 2033 | 0 | | 365 | | 29 | $ - | $0 | $307,645 | $4,948 | $2,638 |
| 2034 | 0 | | 354 | | 29 | $ - | $0 | $307,645 | $4,800 | $2,487 |
| 2035 | 0 | | 344 | | 28 | $ - | $0 | $307,645 | $4,656 | $2,344 |
| 2036 | 0 | | 304 | | 25 | $ - | $0 | $307,645 | $4,124 | $2,018 |
| 2037 | 0 | | 266 | | 21 | $ - | $0 | $307,645 | $3,608 | $1,716 |
| 2038 | 0 | | 229 | | 18 | $ - | $0 | $307,645 | $3,107 | $1,436 |
| 2039 | 0 | | 193 | | 16 | $ - | $0 | $307,645 | $2,622 | $1,178 |
| 2040 | 0 | | 159 | | 13 | $ - | $0 | $307,645 | $2,151 | $939 |
| 2041 | 0 | | 125 | | 10 | $ - | $0 | $307,645 | $1,694 | $719 |
| 2042 | 0 | | 92 | | 7 | $ - | $0 | $307,645 | $1,251 | $516 |
| 2043 | 0 | | 61 | | 5 | $ - | $0 | $307,645 | $821 | $329 |
| 2044 | 0 | | 30 | | 2 | $ - | $0 | $307,645 | $404 | $157 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $307,645 | $0 | $0 |
| **Total** | **620** | | | | **888** | | **$307,645** | | | **$99,716** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.32** |
| **$/AF** | **$346.30** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $307,645 |
| **Total Benefits** | $99,716 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $346 |
| **Water Savings (AFY)** | 888 |
| Benefits/Costs | 0.32 |

## BMP9: CII Zero Consumption Urinal Rebates

**Potential Program Savings**

| | |
|---|---|
| **Worksheet Name:** | 15 |
| **Savings (AFY/Unit)** | 0.092 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.092 |
| **Decay Factor** | 3% |
| **Unit Costs ($/unit)** | $ 450.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 54 | | 54 | | 5 | $ 30,618 | $30,618 | $30,618 | $840 | $840 |
| 2012 | 54 | | 107 | | 10 | $ 30,618 | $29,755 | $60,373 | $1,655 | $1,608 |
| 2013 | 54 | | 158 | | 15 | $ 30,618 | $28,916 | $89,289 | $2,445 | $2,309 |
| 2014 | 54 | | 208 | | 19 | $ 30,618 | $28,101 | $117,391 | $3,212 | $2,948 |
| 2015 | 54 | | 256 | | 24 | $ 30,618 | $27,310 | $144,700 | $3,955 | $3,528 |
| 2016 | 54 | | 303 | | 28 | $ 30,618 | $26,540 | $171,240 | $4,677 | $4,054 |
| 2017 | 54 | | 348 | | 32 | $ 30,618 | $25,792 | $197,032 | $5,376 | $4,529 |
| 2018 | 54 | | 392 | | 36 | $ 30,618 | $25,065 | $222,097 | $6,055 | $4,957 |
| 2019 | 54 | | 435 | | 40 | $ 30,618 | $24,359 | $246,456 | $6,714 | $5,341 |
| 2020 | 54 | | 476 | | 44 | $ 30,618 | $23,672 | $270,128 | $7,352 | $5,684 |
| 2021 | 0 | | 462 | | 42 | $ - | $0 | $270,128 | $7,132 | $5,358 |
| 2022 | 0 | | 448 | | 41 | $ - | $0 | $270,128 | $6,918 | $5,051 |
| 2023 | 0 | | 435 | | 40 | $ - | $0 | $270,128 | $6,710 | $4,761 |
| 2024 | 0 | | 422 | | 39 | $ - | $0 | $270,128 | $6,509 | $4,488 |
| 2025 | 0 | | 409 | | 38 | $ - | $0 | $270,128 | $6,314 | $4,231 |
| 2026 | 0 | | 397 | | 36 | $ - | $0 | $270,128 | $6,124 | $3,989 |
| 2027 | 0 | | 385 | | 35 | $ - | $0 | $270,128 | $5,940 | $3,760 |
| 2028 | 0 | | 373 | | 34 | $ - | $0 | $270,128 | $5,762 | $3,544 |
| 2029 | 0 | | 362 | | 33 | $ - | $0 | $270,128 | $5,589 | $3,341 |
| 2030 | 0 | | 351 | | 32 | $ - | $0 | $270,128 | $5,422 | $3,149 |
| 2031 | 0 | | 341 | | 31 | $ - | $0 | $270,128 | $5,259 | $2,969 |
| 2032 | 0 | | 331 | | 30 | $ - | $0 | $270,128 | $5,101 | $2,799 |
| 2033 | 0 | | 321 | | 29 | $ - | $0 | $270,128 | $4,948 | $2,638 |
| 2034 | 0 | | 311 | | 29 | $ - | $0 | $270,128 | $4,800 | $2,487 |
| 2035 | 0 | | 302 | | 28 | $ - | $0 | $270,128 | $4,656 | $2,344 |
| 2036 | 0 | | 267 | | 25 | $ - | $0 | $270,128 | $4,124 | $2,018 |
| 2037 | 0 | | 234 | | 21 | $ - | $0 | $270,128 | $3,608 | $1,716 |
| 2038 | 0 | | 201 | | 18 | $ - | $0 | $270,128 | $3,107 | $1,436 |
| 2039 | 0 | | 170 | | 16 | $ - | $0 | $270,128 | $2,622 | $1,178 |
| 2040 | 0 | | 139 | | 13 | $ - | $0 | $270,128 | $2,151 | $939 |
| 2041 | 0 | | 110 | | 10 | $ - | $0 | $270,128 | $1,694 | $719 |
| 2042 | 0 | | 81 | | 7 | $ - | $0 | $270,128 | $1,251 | $516 |
| 2043 | 0 | | 53 | | 5 | $ - | $0 | $270,128 | $821 | $329 |
| 2044 | 0 | | 26 | | 2 | $ - | $0 | $270,128 | $404 | $157 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $270,128 | $0 | $0 |
| **Total** | **544** | | | | **888** | | **$270,128** | | | **$99,716** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.37** |
| **$/AF** | **$304.07** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $270,128 |
| **Total Benefits** | $99,716 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $304 |
| **Water Savings (AFY)** | 888 |
| Benefits/Costs | 0.37 |

## BMP14: Residential HET Rebates (SFR)

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 16 |
| **Savings (AFY/Unit)** | 0.024 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.024 |
| **Decay Factor** | 4% |
| **Unit Costs ($/unit)** | $ 100.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 35 | | 35 | | 1 | $ 4,409 | $4,409 | $4,409 | $140 | $140 |
| 2012 | 35 | | 69 | | 2 | $ 4,409 | $4,284 | $8,693 | $275 | $267 |
| 2013 | 35 | | 102 | | 2 | $ 4,409 | $4,164 | $12,857 | $404 | $381 |
| 2014 | 35 | | 133 | | 3 | $ 4,409 | $4,046 | $16,903 | $527 | $484 |
| 2015 | 35 | | 163 | | 4 | $ 4,409 | $3,932 | $20,836 | $646 | $577 |
| 2016 | 35 | | 192 | | 5 | $ 4,409 | $3,822 | $24,657 | $761 | $659 |
| 2017 | 35 | | 219 | | 5 | $ 4,409 | $3,714 | $28,371 | $870 | $733 |
| 2018 | 35 | | 246 | | 6 | $ 4,409 | $3,609 | $31,980 | $976 | $799 |
| 2019 | 35 | | 271 | | 6 | $ 4,409 | $3,507 | $35,488 | $1,077 | $856 |
| 2020 | 35 | | 296 | | 7 | $ 4,409 | $3,409 | $38,896 | $1,174 | $907 |
| 2021 | 0 | | 284 | | 7 | $ - | $0 | $38,896 | $1,127 | $846 |
| 2022 | 0 | | 272 | | 6 | $ - | $0 | $38,896 | $1,082 | $790 |
| 2023 | 0 | | 261 | | 6 | $ - | $0 | $38,896 | $1,038 | $737 |
| 2024 | 0 | | 251 | | 6 | $ - | $0 | $38,896 | $997 | $687 |
| 2025 | 0 | | 241 | | 6 | $ - | $0 | $38,896 | $957 | $641 |
| 2026 | 0 | | 231 | | 5 | $ - | $0 | $38,896 | $919 | $598 |
| 2027 | 0 | | 222 | | 5 | $ - | $0 | $38,896 | $882 | $558 |
| 2028 | 0 | | 213 | | 5 | $ - | $0 | $38,896 | $847 | $521 |
| 2029 | 0 | | 205 | | 5 | $ - | $0 | $38,896 | $813 | $486 |
| 2030 | 0 | | 196 | | 5 | $ - | $0 | $38,896 | $780 | $453 |
| 2031 | 0 | | 189 | | 4 | $ - | $0 | $38,896 | $749 | $423 |
| 2032 | 0 | | 181 | | 4 | $ - | $0 | $38,896 | $719 | $394 |
| 2033 | 0 | | 174 | | 4 | $ - | $0 | $38,896 | $690 | $368 |
| 2034 | 0 | | 167 | | 4 | $ - | $0 | $38,896 | $663 | $343 |
| 2035 | 0 | | 160 | | 4 | $ - | $0 | $38,896 | $636 | $320 |
| 2036 | 0 | | 141 | | 3 | $ - | $0 | $38,896 | $560 | $274 |
| 2037 | 0 | | 123 | | 3 | $ - | $0 | $38,896 | $487 | $232 |
| 2038 | 0 | | 105 | | 2 | $ - | $0 | $38,896 | $417 | $193 |
| 2039 | 0 | | 88 | | 2 | $ - | $0 | $38,896 | $350 | $157 |
| 2040 | 0 | | 72 | | 2 | $ - | $0 | $38,896 | $286 | $125 |
| 2041 | 0 | | 56 | | 1 | $ - | $0 | $38,896 | $224 | $95 |
| 2042 | 0 | | 41 | | 1 | $ - | $0 | $38,896 | $164 | $68 |
| 2043 | 0 | | 27 | | 1 | $ - | $0 | $38,896 | $107 | $43 |
| 2044 | 0 | | 13 | | 0 | $ - | $0 | $38,896 | $53 | $20 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $38,896 | $0 | $0 |
| **Total** | **353** | | | | **133** | | **$38,896** | | | **$15,177** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.39** |
| **$/AF** | **$291.79** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $38,896 |
| **Total Benefits** | $15,177 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $292 |
| **Water Savings (AFY)** | 133 |
| Benefits/Costs | 0.39 |

## BMP14: Residential ULFT Rebates (SFR)

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 17 |
| **Savings (AFY/Unit)** | 0.019 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.019 |
| **Decay Factor** | 4% |
| **Unit Costs ($/unit)** | $ 100.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 35 | | 35 | | 1 | $ 4,409 | $4,409 | $4,409 | $112 | $112 |
| 2012 | 35 | | 69 | | 1 | $ 4,409 | $4,284 | $8,693 | $220 | $214 |
| 2013 | 35 | | 102 | | 2 | $ 4,409 | $4,164 | $12,857 | $323 | $305 |
| 2014 | 35 | | 133 | | 3 | $ 4,409 | $4,046 | $16,903 | $422 | $388 |
| 2015 | 35 | | 163 | | 3 | $ 4,409 | $3,932 | $20,836 | $518 | $462 |
| 2016 | 35 | | 192 | | 4 | $ 4,409 | $3,822 | $24,657 | $609 | $528 |
| 2017 | 35 | | 219 | | 4 | $ 4,409 | $3,714 | $28,371 | $697 | $587 |
| 2018 | 35 | | 246 | | 5 | $ 4,409 | $3,609 | $31,980 | $781 | $640 |
| 2019 | 35 | | 271 | | 5 | $ 4,409 | $3,507 | $35,488 | $862 | $686 |
| 2020 | 35 | | 296 | | 6 | $ 4,409 | $3,409 | $38,896 | $940 | $727 |
| 2021 | 0 | | 284 | | 5 | $ - | $0 | $38,896 | $902 | $678 |
| 2022 | 0 | | 272 | | 5 | $ - | $0 | $38,896 | $866 | $633 |
| 2023 | 0 | | 261 | | 5 | $ - | $0 | $38,896 | $832 | $590 |
| 2024 | 0 | | 251 | | 5 | $ - | $0 | $38,896 | $798 | $551 |
| 2025 | 0 | | 241 | | 5 | $ - | $0 | $38,896 | $766 | $514 |
| 2026 | 0 | | 231 | | 4 | $ - | $0 | $38,896 | $736 | $479 |
| 2027 | 0 | | 222 | | 4 | $ - | $0 | $38,896 | $706 | $447 |
| 2028 | 0 | | 213 | | 4 | $ - | $0 | $38,896 | $678 | $417 |
| 2029 | 0 | | 205 | | 4 | $ - | $0 | $38,896 | $651 | $389 |
| 2030 | 0 | | 196 | | 4 | $ - | $0 | $38,896 | $625 | $363 |
| 2031 | 0 | | 189 | | 4 | $ - | $0 | $38,896 | $600 | $339 |
| 2032 | 0 | | 181 | | 3 | $ - | $0 | $38,896 | $576 | $316 |
| 2033 | 0 | | 174 | | 3 | $ - | $0 | $38,896 | $553 | $295 |
| 2034 | 0 | | 167 | | 3 | $ - | $0 | $38,896 | $531 | $275 |
| 2035 | 0 | | 160 | | 3 | $ - | $0 | $38,896 | $510 | $257 |
| 2036 | 0 | | 141 | | 3 | $ - | $0 | $38,896 | $449 | $220 |
| 2037 | 0 | | 123 | | 2 | $ - | $0 | $38,896 | $390 | $186 |
| 2038 | 0 | | 105 | | 2 | $ - | $0 | $38,896 | $334 | $155 |
| 2039 | 0 | | 88 | | 2 | $ - | $0 | $38,896 | $281 | $126 |
| 2040 | 0 | | 72 | | 1 | $ - | $0 | $38,896 | $229 | $100 |
| 2041 | 0 | | 56 | | 1 | $ - | $0 | $38,896 | $179 | $76 |
| 2042 | 0 | | 41 | | 1 | $ - | $0 | $38,896 | $132 | $54 |
| 2043 | 0 | | 27 | | 1 | $ - | $0 | $38,896 | $86 | $34 |
| 2044 | 0 | | 13 | | 0 | $ - | $0 | $38,896 | $42 | $16 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $38,896 | $0 | $0 |
| **Total** | **353** | | | | **107** | | **$38,896** | | | **$12,156** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.31** |
| **$/AF** | **$364.30** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $38,896 |
| **Total Benefits** | $12,156 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $364 |
| **Water Savings (AFY)** | 107 |
| Benefits/Costs | 0.31 |

## BMP14: Residential HET Rebates (MFR)

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 18 |
| **Savings (AFY/Unit)** | 0.030 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.030 |
| **Decay Factor** | 4% |
| **Unit Costs ($/unit)** | $ 100.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 3 | | 3 | | 0 | $ 405 | $405 | $405 | $16 | $16 |
| 2012 | 3 | | 6 | | 0 | $ 405 | $394 | $799 | $32 | $31 |
| 2013 | 3 | | 9 | | 0 | $ 405 | $382 | $1,181 | $47 | $44 |
| 2014 | 3 | | 12 | | 0 | $ 405 | $372 | $1,553 | $61 | $56 |
| 2015 | 3 | | 15 | | 0 | $ 405 | $361 | $1,914 | $75 | $67 |
| 2016 | 3 | | 18 | | 1 | $ 405 | $351 | $2,265 | $88 | $76 |
| 2017 | 3 | | 20 | | 1 | $ 405 | $341 | $2,606 | $101 | $85 |
| 2018 | 3 | | 23 | | 1 | $ 405 | $332 | $2,938 | $113 | $92 |
| 2019 | 3 | | 25 | | 1 | $ 405 | $322 | $3,260 | $125 | $99 |
| 2020 | 3 | | 27 | | 1 | $ 405 | $313 | $3,573 | $136 | $105 |
| 2021 | 0 | | 26 | | 1 | $ - | $0 | $3,573 | $130 | $98 |
| 2022 | 0 | | 25 | | 1 | $ - | $0 | $3,573 | $125 | $91 |
| 2023 | 0 | | 24 | | 1 | $ - | $0 | $3,573 | $120 | $85 |
| 2024 | 0 | | 23 | | 1 | $ - | $0 | $3,573 | $115 | $80 |
| 2025 | 0 | | 22 | | 1 | $ - | $0 | $3,573 | $111 | $74 |
| 2026 | 0 | | 21 | | 1 | $ - | $0 | $3,573 | $106 | $69 |
| 2027 | 0 | | 20 | | 1 | $ - | $0 | $3,573 | $102 | $65 |
| 2028 | 0 | | 20 | | 1 | $ - | $0 | $3,573 | $98 | $60 |
| 2029 | 0 | | 19 | | 1 | $ - | $0 | $3,573 | $94 | $56 |
| 2030 | 0 | | 18 | | 1 | $ - | $0 | $3,573 | $90 | $52 |
| 2031 | 0 | | 17 | | 1 | $ - | $0 | $3,573 | $87 | $49 |
| 2032 | 0 | | 17 | | 0 | $ - | $0 | $3,573 | $83 | $46 |
| 2033 | 0 | | 16 | | 0 | $ - | $0 | $3,573 | $80 | $43 |
| 2034 | 0 | | 15 | | 0 | $ - | $0 | $3,573 | $77 | $40 |
| 2035 | 0 | | 15 | | 0 | $ - | $0 | $3,573 | $74 | $37 |
| 2036 | 0 | | 13 | | 0 | $ - | $0 | $3,573 | $65 | $32 |
| 2037 | 0 | | 11 | | 0 | $ - | $0 | $3,573 | $56 | $27 |
| 2038 | 0 | | 10 | | 0 | $ - | $0 | $3,573 | $48 | $22 |
| 2039 | 0 | | 8 | | 0 | $ - | $0 | $3,573 | $41 | $18 |
| 2040 | 0 | | 7 | | 0 | $ - | $0 | $3,573 | $33 | $14 |
| 2041 | 0 | | 5 | | 0 | $ - | $0 | $3,573 | $26 | $11 |
| 2042 | 0 | | 4 | | 0 | $ - | $0 | $3,573 | $19 | $8 |
| 2043 | 0 | | 2 | | 0 | $ - | $0 | $3,573 | $12 | $5 |
| 2044 | 0 | | 1 | | 0 | $ - | $0 | $3,573 | $6 | $2 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $3,573 | $0 | $0 |
| **Total** | **32** | | | | **15** | | **$3,573** | | | **$1,758** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.49** |
| **$/AF** | **$231.46** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $3,573 |
| **Total Benefits** | $1,758 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $231 |
| **Water Savings (AFY)** | 15 |
| Benefits/Costs | 0.49 |

## BMP14: Residential ULFT Rebates (MFR)

### Potential Program Savings

| | |
|---|---|
| **Worksheet Name:** | 19 |
| **Savings (AFY/Unit)** | 0.024 |
| **% Savings Method** | |
| Usage/Customer (AFY) | 0 |
| % Savings | 0% |
| Unit Savings (AFY/unit) | 0.000 |
| **Unit Savings Method** | |
| Unit Savings (AFY/unit) | 0.024 |
| **Decay Factor** | 4% |
| **Unit Costs ($/unit)** | $ 100.00 |
| **Admin Costs** | 25% |

**B/C Analysis - Multi-year program analysis**

| Year | No. of Units/Year | | Cummulative Equivalent Accounts | | Annual Water Savings (AFY) | Annual Costs ($) | Annual Costs ($, PV) | Cummulative Costs ($, PV) | Annual Costs of Saved Water ($) | Annual Costs of Saved Water ($, PV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 3 | | 3 | | 0 | $ 405 | $405 | $405 | $13 | $13 |
| 2012 | 3 | | 6 | | 0 | $ 405 | $394 | $799 | $25 | $25 |
| 2013 | 3 | | 9 | | 0 | $ 405 | $382 | $1,181 | $37 | $35 |
| 2014 | 3 | | 12 | | 0 | $ 405 | $372 | $1,553 | $49 | $45 |
| 2015 | 3 | | 15 | | 0 | $ 405 | $361 | $1,914 | $60 | $53 |
| 2016 | 3 | | 18 | | 0 | $ 405 | $351 | $2,265 | $71 | $61 |
| 2017 | 3 | | 20 | | 0 | $ 405 | $341 | $2,606 | $81 | $68 |
| 2018 | 3 | | 23 | | 1 | $ 405 | $332 | $2,938 | $90 | $74 |
| 2019 | 3 | | 25 | | 1 | $ 405 | $322 | $3,260 | $100 | $79 |
| 2020 | 3 | | 27 | | 1 | $ 405 | $313 | $3,573 | $109 | $84 |
| 2021 | 0 | | 26 | | 1 | $ - | $0 | $3,573 | $104 | $78 |
| 2022 | 0 | | 25 | | 1 | $ - | $0 | $3,573 | $100 | $73 |
| 2023 | 0 | | 24 | | 1 | $ - | $0 | $3,573 | $96 | $68 |
| 2024 | 0 | | 23 | | 1 | $ - | $0 | $3,573 | $92 | $64 |
| 2025 | 0 | | 22 | | 1 | $ - | $0 | $3,573 | $89 | $59 |
| 2026 | 0 | | 21 | | 1 | $ - | $0 | $3,573 | $85 | $55 |
| 2027 | 0 | | 20 | | 0 | $ - | $0 | $3,573 | $82 | $52 |
| 2028 | 0 | | 20 | | 0 | $ - | $0 | $3,573 | $79 | $48 |
| 2029 | 0 | | 19 | | 0 | $ - | $0 | $3,573 | $75 | $45 |
| 2030 | 0 | | 18 | | 0 | $ - | $0 | $3,573 | $72 | $42 |
| 2031 | 0 | | 17 | | 0 | $ - | $0 | $3,573 | $69 | $39 |
| 2032 | 0 | | 17 | | 0 | $ - | $0 | $3,573 | $67 | $37 |
| 2033 | 0 | | 16 | | 0 | $ - | $0 | $3,573 | $64 | $34 |
| 2034 | 0 | | 15 | | 0 | $ - | $0 | $3,573 | $61 | $32 |
| 2035 | 0 | | 15 | | 0 | $ - | $0 | $3,573 | $59 | $30 |
| 2036 | 0 | | 13 | | 0 | $ - | $0 | $3,573 | $52 | $25 |
| 2037 | 0 | | 11 | | 0 | $ - | $0 | $3,573 | $45 | $21 |
| 2038 | 0 | | 10 | | 0 | $ - | $0 | $3,573 | $39 | $18 |
| 2039 | 0 | | 8 | | 0 | $ - | $0 | $3,573 | $32 | $15 |
| 2040 | 0 | | 7 | | 0 | $ - | $0 | $3,573 | $26 | $12 |
| 2041 | 0 | | 5 | | 0 | $ - | $0 | $3,573 | $21 | $9 |
| 2042 | 0 | | 4 | | 0 | $ - | $0 | $3,573 | $15 | $6 |
| 2043 | 0 | | 2 | | 0 | $ - | $0 | $3,573 | $10 | $4 |
| 2044 | 0 | | 1 | | 0 | $ - | $0 | $3,573 | $5 | $2 |
| 2045 | 0 | | 0 | | 0 | $ - | $0 | $3,573 | $0 | $0 |
| **Total** | **32** | | | | **12** | | **$3,573** | | | **$1,407** |

Notes:

| | |
|---|---|
| **Benefits/Costs** | **0.39** |
| **$/AF** | **$289.05** |

| **DWR DMM Review Table** | |
|---|---|
| **Cost Effectiveness Summary** | |
| **Total Costs** | $3,573 |
| **Total Benefits** | $1,407 |
| **Discount Rate** | 2.9% |
| **Time Horizon** | 25 years |
| Cost of Water ($/AF) | $289 |
| **Water Savings (AFY)** | 12 |
| Benefits/Costs | 0.39 |

# Appendix G

## Water Rate Structure and Connection Fees

*Linda County Water District*
*1280 Scales Street*
*Marysville, CA 95901*
*Phone (530) 743-2043*
*Fax (530) 743-6858*

| | | | |
|---|---|---|---|
| **WATER:** | 5/8 inch | $ | 4,070.00 |
| | ¾ inch | | 6,105.00 |
| | 1 inch | | 10,175.00 |
| | Larger than 1 inch | | meter size in inches<br>Multiplied by $ 10,175.00 |

**WATER METER SET FEE:**

| | | |
|---|---|---|
| 5/8" X ¾" | $ | 380.00/meter |
| Full ¾" | | 420.00/meter |
| 1" | | 500.00/meter |
| 1 ½" | | 610.00/meter |
| 2" and larger | | Actual District cost of materials and labor |

**SEWER:** Single family residence, Multiple family dwelling and Trailer courts and mobile home Parks

| | |
|---|---|
| Treatment Plant Portion | $ 4,900.00 per unit |
| Collection System Portion | $ 2,200.00 per unit |

($ 7,100.00 total per unit for sewer)

**PLUS ACTUAL CONSTRUCTION COSTS**

**Effective 10/15/07**

**Section 4. Sewer Service Rate Adjustment; Non-Residential.** Linda County Water District Code chapter 4, section 4.11.25, subparagraph B is hereby amended by changing the rate table in the subparagraph to read as follows:

| | |
|---|---|
| Class 0 | $18.50 + ($.20 x Water Use/100 x 0.5) |
| Class 1 | $18.50 + ($.30 x Water Use/100 x 0.8) |
| Class 2 | $18.50 + ($.40 x Water Use/100 x 1.0) |
| Class 3 | $18.50 + ($.50 x Water USe/100 x 1.3) |
| Class 4 | $18.50 + ($.60 x Water Use/100 x 1.5) |
| Class 5 | $9.25 + ($.40 x Water Use/100 x 1.0 |
| Class 6 | $9.25 + ($.50 x Water Use/100 x 1.3) |
| Class 7 | case-by-case determination |

**Section 5. Sewer Service Rate Adjustment; Schools.** Linda County Water District Code chapter 4, section 4.11.25, subparagraph C is hereby amended by changing the sewer service charge for schools and colleges from ~~$5.95 to~~ $7.85 per student per year.

**Section 6. Water Service Rate Adjustment.** Linda County Water District Code chapter 5, article 18, sections A and B are hereby amended to read as follows:

District water service customers shall be charged a water service charge consisting of a base rate plus a metered rate as follows:

(A) MONTHLY BASE RATE SERVICE CHARGES:

| | Meter Size | Monthly Base Rate | |
|---|---|---|---|
| | | | |
| A | 5/8-inch | $6.50 | W01 |
| B | 3/4-inch | $9.10 | W02 |
| C | 1-inch | $11.70 | W03 |
| D | 1½-inch | $14.30 | W04 |
| E | 2-inch | $22.05 | W05 |
| F | 3-inch | $42.80 | W06 |
| G | 4-inch | $57.10 | W07 |
| H | 6-inch | $101.15 | WC09 |
| I | 8-inch | $151.70 | WC08 |

W12 - Usage only

For any use involving an additional residential dwelling unit or business on the same water meter, there shall be an additional $2.60/month base rate for each additional dwelling unit or business served by the same meter.

(B) MONTHLY METERED RATE SERVICE CHARGES:

Rate per 100 cu. ft. usage $ 0.70

# HISTORICAL RATE CHANGES

## WATER AND SEWER SERVICE CHARGES

### WATER CONSUMPTION

| DATE | OLD | NEW |
|---|---|---|
| 7/1/87 | | 30¢ per 100 cu ft |
| 8/88 | 30¢ per 100 cu ft | 40¢ per 100 cu ft |
| 5/1/93 | 40¢ per 100 cu ft | 50¢ per 100 cu ft |
| 5/96 | 50¢ per 100 cu ft | 55¢ per 100 cu ft |
| 11/00 | 55¢ per 100 cu ft | 60¢ per 100 cu ft |
| 2/02 | 60¢ per 100 cu ft | 65¢ per 100 cu ft |
| 3/06 | 65 per 100 cu ft | 70 per 100 cu ft |

### WATER SERVICE CHARGE

| DATE | OLD | NEW |
|---|---|---|
| 7/1/87 | | 5.00 |
| 8/1/88 | 5.00 | 5.25 |
| 2/1/03 | 5.25 | 6.00 |
| 3/06 | 6.00 | 6.50 |

### SEWER SERVICE CHARGE

| DATE | OLD | NEW |
|---|---|---|
| 5/1/93 | 7.00 | 9.00 |
| 5/96 | 9.00 | 11.00 |
| 11/00 | 11.00 | 12.00 |
| 2/02 | 12.00 | 14.00 |
| 3/06 | 14.00 | 18.50 |
| 8/09 | 18.50 | 22.60 |
| 7/10 | 22.60 | 26.70 |
| 7/11 | 26.70 | 36.80 |

# Appendix H

## Historical and Projected Population Data

## Historical and Projected Population

### 2000 US Census Data

| County Code | Census Tract Code | Area (Sq. Mile) | Total 2000 Population | % Within LCWD | LCWD 2000 Population |
|---|---|---|---|---|---|
| 115 | 040100 | 3.098 | 4,606 | 0% | 0 |
| 115 | 040200 | 1.624 | 7,991 | 0% | 0 |
| 115 | 040300 | 4.081 | 8,483 | 100% | 8,483 |
| 115 | 040400 | 7.031 | 5,343 | 90% | 4,809 |
| 115 | 040500 | 0.962 | 3,772 | 2% | 75 |
| 115 | 040600 | 1.571 | 5,318 | 0% | 0 |
| 115 | 040700 | 36.511 | 2,926 | 0% | 0 |
| 115 | 040800 | 42.066 | 3,151 | 0% | 0 |
| 115 | 040901 | 97.433 | 2,210 | 5% | 111 |
| 115 | 040902 | 39.469 | 5,641 | 0% | 0 |
| 115 | 041000 | 180.751 | 6,195 | 0% | 0 |
| 115 | 041100 | 216.097 | 4,583 | 0% | 0 |
| Total | | | 60,219 | | 13,478 |

### 2008 SACOG Data

| TAZ 2007 | RAD Name | RAD Number | County Name | % Within LCWD | LCWD POPULATION | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 2005 | 2013 | 2018 | 2035 |
| 1342 | Linda | 42 | YUBA | 100% | 0 | 0 | 0 | 0 |
| 1343 | Linda | 42 | YUBA | 100% | 1,147 | 1,473 | 1,457 | 1,992 |
| 1344 | Linda | 42 | YUBA | 100% | 93 | 94 | 103 | 3,191 |
| 1345 | Linda | 42 | YUBA | 100% | 3,934 | 6,941 | 8,410 | 8,746 |
| 1346 | Linda | 42 | YUBA | 100% | 102 | 103 | 86 | 92 |
| 1347 | Linda | 42 | YUBA | 100% | 863 | 1,307 | 1,361 | 1,337 |
| 1348 | Linda | 42 | YUBA | 100% | 1,829 | 3,244 | 3,251 | 3,257 |
| 1349 | Linda | 42 | YUBA | 0% | 0 | 0 | 0 | 0 |
| 1350 | Linda | 42 | YUBA | 100% | 2,037 | 2,315 | 2,256 | 2,335 |
| 1351 | Linda | 42 | YUBA | 100% | 1,652 | 2,160 | 2,171 | 2,211 |
| 1352 | Linda | 42 | YUBA | 50% | 246 | 331 | 336 | 350 |
| 1353 | Linda | 42 | YUBA | 0% | 0 | 0 | 0 | 0 |
| 1354 | Linda | 42 | YUBA | 95% | 779 | 803 | 789 | 812 |
| 1355 | Olivehurst | 41 | YUBA | 25% | 338 | 363 | 360 | 367 |
| 1381 | Beale | 43 | YUBA | 100% | 1,357 | 1,394 | 1,388 | 1,587 |
| | | | **Total** | | 14,377 | 20,527 | 21,967 | 26,277 |

Notes:

SACOG Sacramento Area Council of Governments

RAD Regional Analysis District

TAZ Traffic Analysis Zone

# Appendix I

Draft Water Shortage Contingency Resolution

DRAFT WATER SHORTAGE
CONTINGENCY RESOLUTION

LINDA COUNTY WATER DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO.

Introduced by:

Seconded by:

WHEREAS, the California Legislature amended Water Code Sections 10620, 10631, and 10652, and added to Section 10656 during the First Extraordinary Session of 1991-1992 such that each urban water supplier shall, not later than July 1, 2011, prepare, adopt, and submit to the California Department of Water Resources an amendment to its urban water management plan, the primary objective of which is to plan for water supply shortages; and

WHEREAS, this bill, commonly known as the Urban Water Management Planning Act requires all urban water purveyors serving more than 3,000 customers either directly or indirectly, or more than 3,000 acre-feet of water annually, to prepare and submit a plan, or plan update, once every five years; and

WHEREAS, Linda County Water District has prepared and circulated for public review a Draft Water Shortage Contingency Plan; and

WHEREAS, a duly noticed public hearing regarding said Draft Plan was held by Linda County Water District in June 2011; and

WHEREAS, the Board of Directors of Linda County Water District of Alameda County Flood Control and Water Conservation District adopted the Plan in July 2010, and said Plan was subsequently filed with the State of California Department of Water Resources; and

NOW, THEREFORE, BE IT RESOLVED, that said Urban Water Shortage Contingency Plan be approved; and

BE IT FURTHER RESOLVED, that said Plan be filed with the State of California Department of Water Resources.

ADOPTED this 11th day of July 2011, by the following vote:

AYES:
NOES:

ABSENT:
ABSTAIN:

ATTEST: _____
District Clerk

Linda County Board of Directors (indicate names)
Chief, Water Department

Approved as to Form and Legality: _____

District Attorney

No Waste Ordinance

Linda County Water District
Marysville, CALIFORNIA
11 July, 2011

The board of directors of the Linda County Water District does hereby resolve as follows:

The Municipal Code of Linda County Water District is hereby amended by adding Section XX to Chapter XX, to read as follows:

## XX-1 PROHIBITING WASTEFUL USE OF WATER

### REGULATIONS AND RESTRICTIONS ON WATER USE

It is hereby resolved by the board of directors that in order to conserve the district's water supply for the greatest public benefit, and to reduce the quantity of water used by the District's customers, that wasteful use of water should be eliminated. Customers of the District shall observe the following regulations and restrictions on water use:

1. No customer shall waste water. As used herein, the term "waste" means:

    a. Use of potable water to irrigate turf, ground-cover, shrubbery, crops, vegetation, and trees (agricultural accounts are excluded from the time of irrigation restriction) between the hours of 10:00 o'clock A.M. and 6:00 o'clock P.M. or in such a manner as to result in runoff for more than five (5) minutes;
    b. Use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground or other hard surfaced areas except where necessary for public health or safety;
    c. Allowing potable water to escape from breaks within the customer's plumbing system for more than twenty-four (24) hours after the customer is notified or discovers the break;
    d. Washing cars, boats, trailers, aircraft, or other vehicles by hose without a shutoff nozzle and bucket except to wash such vehicles at commercial or fleet vehicle washing facilities using water recycling equipment.
    e. Use of potable water to clean, fill or maintain decorative fountains, lakes or ponds unless such water is reclaimed.

2. The following restrictions are effective during a declared Water-Shortage Emergency.

    a. No restaurant, hotel, cafe, cafeteria or other public place where food is sold, served or offered for sale, shall serve drinking water to any customer unless expressly requested.
    b. Use of potable water for construction, compaction, dust control, street or parking lot sweeping, building washdown where non-potable or recycled water is sufficient.
    c. Use of potable water for sewer system maintenance or fire protection training without prior approval by the District;
    d. Use of potable water for any purpose in excess of the amounts allocated or each class of service.

3. Other restrictions may be necessary during a declared Water Shortage Emergency, to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

## Enforcement

Any customer violating the regulations and restrictions on water use set forth in this chapter shall receive a written warning for the first such violation. Upon a second violation, the customer shall receive a written warning and the district may cause a flow-restrictor to be installed in the service. If a flow-restrictor is placed, the cost of installation and removal shall be paid by the violator. Any willful violation occurring subsequent to the issuance of the second written warning shall constitute a misdemeanor and may be referred to the County District Attorney's Office for prosecution. The district may also disconnect the water service. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the Board of Directors.

## Penalty for violations

Except as provided in the enforcement section for the first and second violations any person, firm, partnership, association, corporation or political entity violating or causing or permitting the violation of any of the provisions of this section or providing false information to the district in response to district's requests for information needed by the district to calculate consumer water allotments shall be guilty of a misdemeanor punishable by imprisonment in the county jail for not more that thirty days or by a fine not exceeding one thousand dollars or both. Each separate day or portion thereof in which any violation occurs or continues without a good faith effort by the responsible party to correct the violation shall constitute a separate offense and, upon conviction thereof, shall be separately punishable.

## Appeals

Variances from the requirements of this Section may be granted by the Board of Directors only after denial of a variance request by the general manager. Appeals of variance request denials shall be made in writing to the secretary of the Board at least 2 weeks prior to the meeting at which they will be heard. Upon granting any appeal, the Board of directors may impose any conditions it determines to be just and proper. Variances granted by the Board shall be prepared in writing, the furnished to the applicant. The board of Directors may require it to be recorded at applicant's expense.

## Remedies/Cumulative

The remedies available to the district to enforce this ordinance are in addition to any other remedies available under the district's code or any state statutes or regulations, and do not replace or supplant any other remedy, but are cumulative.

# Resolution To Declare A Water Shortage Emergency

Linda County Water District
Marysville, CALIFORNIA
11 July 2011

Linda County Water District Board of Directors does hereby resolve as follows:

PURSUANT to California Water Code Section 350 et seq., the Board of Directors has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Board of Directors finds, determines and declares as follows:

(a) The District is the water purveyor for the property owners and inhabitants of New Albion;

(b) The demand for water service is not expected to lessen.

(c) When the combined total amount of water supply available to the District from all sources falls at or below the Stage II triggering levels described in the 2005 Urban Water Management Plan, the District will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the District's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until precipitation and inflow dramatically increases or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Linda County Water District hereby directs the Mayor to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the District's water supply is deemed adequate. After the declaration of a water shortage emergency, the director is directed to determine the appropriate Rationing Stage and implement the District's Water Shortage Emergency Response.

FURTHERMORE, the Board of Directors shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

Moratorium On New Connections During A Water Shortage

Linda County Water District
Marysville, CALIFORNIA
11 July 2011

The Board of Directors of Linda County Water District does hereby resolve as follows:
The Municipal Code of Linda County Water District is hereby amended to read as follows:

## XX-1 MORATORIUM ON SERVICE COMMITMENTS AND CONNECTIONS

1 When the District declares a water shortage emergency, the following regulations shall become effective immediately and shall continue in full force and effect to prohibit the following while it remains in full force and effect:
   a. The District shall not issue oral or written commitments to provide new or expanded water service, including will-serve letters.
   b. The District shall not sell meters for water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments, unless building permits have been issued.
   c. The District shall not provide new or expanded water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments and meters, unless building permits have been issued.
   d. The District shall not provide water for use on any new plantings installed after the declaration of a Water Shortage Emergency.
   e. The District shall not annex territory located outside the District's service boundary.

2. The following uses are exempt from the moratorium and upon application to the District shall receive necessary water service commitments and connections to receive water from the District:
   a. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a building permit has been issued by the District on or before the declaration of a Water Shortage Emergency.
   b. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a retail meter had been purchased from the District before the declaration of a Water Shortage Emergency, as evidenced by a written receipt and for which a building permit has been issued and remains in full force and effect.
   c. Publicly owned and operated facilities, including but not limited to schools, fire stations, police stations, and hospitals and other facilities as necessary to protect the public health, safety and welfare.

# Resolution To Adopt The Urban Water Management Plan

Linda County Water District
Marysville, CALIFORNIA
11 July 2011

Linda County Water District Board of Directors does hereby resolve as follows:

WHEREAS the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS the District is an urban supplier of water providing water to a population over 9,000, and

WHEREAS the Plan shall be periodically reviewed at least once every five years, and that the District shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS the Plan must be adopted by December 31, 2005, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS the District has therefore, prepared and circulated for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the District on October 10th, 2005, and

WHEREAS Linda County Water District did prepare and shall file said Plan with the California Department of Water Resources by October 21st 2005;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Linda County Water District as
follows:

1. The 2005 Urban Water Management Plan is hereby adopted and ordered filed with the District Clerk;
The district director is hereby authorized and directed to file the 2005 Urban Water Management Plan with the California Department of Water Resources within 30 days after this date;

The district director is hereby authorized and directed to implement the Water Conservation Programs as set forth in the 2005 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the District regarding necessary procedures, rules, and regulations to carry out effective and equitable water conservation and water recycling programs;

In a water shortage, the district director is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implement necessary elements of the Plan;

The district director shall recommend to the Board of Directors additional regulations to carry out effective and equitable allocation of water resources; and

The attached budget is approved and authorized for implementation.

ADOPTED this ___ day of _____ 2011, by the following vote:

AYES:
NOES:

ABSENT:
ABSTAIN:

ATTEST: _____
District Clerk, _____

District Council Members (indicate names)
Mayor
Director, Public Works Department
Chief, Water Department

Approved as to Form and Legality: _____
District Attorney

# Appendix J

## State and County Submission Transmittals

**Kennedy/Jenks Consultants**
10850 Gold Center Drive, Suite 350
Rancho Cordova, California 95670
916-858-2700
FAX: 916-858-2754
www.KennedyJenks.com

# Transmittal

***TO:*** Mr. Douglas Lofton
LCWD – General Manager
1280 Scale Avenue
Marysville, CA 95901

***FROM:*** James Bowland
***DATE:*** 2 August 2011
***K/J #:*** 1170001*02
***SUBJECT:*** Linda County Water District 2010 Urban Water Management Plan

***VIA:*** ☐ Fax ## pgs. (inc. cover) ☒ USPS ☐ Other (please specify)

***PLEASE FIND ENCLOSED:***

| Copies | Date | No. | Description |
|---|---|---|---|
| 2 | | 1 | Hardcopy - Linda County Water District 2010 Urban Water Management Plan |
| 1 | | 2 | CD (pdf copy) - Linda County Water District 2010 Urban Water Management Plan |

***THESE ARE SUBMITTED AS CHECKED BELOW:***

☒ As requested
☐ For information and coordination
☐ Return material when review complete
☐ Return after loan to us
☐ For approval by: _____ Return to:
☐ For review and comment by: _____ Return to: _____
☐ Other: _____

***REMARKS:***

Signed: James Bowland
James Bowland

Copies to: 1170001*02/6.04



© 2005 Kennedy/Jenks Consultants Inc.

**Kennedy/Jenks Consultants**
10850 Gold Center Drive, Suite 350
Rancho Cordova, California 95670
916-858-2700
FAX: 916-858-2754
www.KennedyJenks.com

# Transmittal

***TO:*** California Department of Water Resources
Statewide Integrated Water Management
Water Use and Efficiency Branch
P.O. Box 942836
Sacramento, CA 94236-0001
Attention: Coordinator Urban Water Management Plans

***FROM:*** James Bowland
***DATE:*** 2 August 2011
***K/J #:*** 1170001*02
***SUBJECT:*** Linda County Water District 2010 Urban Water Management Plan

***VIA:*** ☐ Fax ## pgs. (inc. cover) ☒ USPS ☐ Other (please specify)

***PLEASE FIND ENCLOSED:***

| Copies | Date | No. | Description |
|---|---|---|---|
| 1 | | 1 | Hardcopy - Linda County Water District 2010 Urban Water Management Plan |
| 1 | | 1 | CD (pdf copy) - Linda County Water District 2010 Urban Water Management Plan |

***THESE ARE SUBMITTED AS CHECKED BELOW:***

☒ As requested
☐ For information and coordination
☐ Return material when review complete
☐ Return after loan to us
☐ For approval by: _____ Return to:
☐ For review and comment by: _____ Return to: _____
☐ Other: _____

***REMARKS:***

Signed: James Bowland
James Bowland

Copies to: 1170001*02/6.04



© 2005 Kennedy/Jenks Consultants Inc.

**Kennedy/Jenks Consultants**
10850 Gold Center Drive, Suite 350
Rancho Cordova, California 95670
916-858-2700
FAX: 916-858-2754
www.KennedyJenks.com

# Transmittal

***TO:*** California State Library
Government Publications Section
P.O. Box 942837
Sacramento, CA 94237-0001
Attention: Coordinator, Urban Water Management Plans

***FROM:*** James Bowland
***DATE:*** 2 August 2011
***K/J #:*** 1170001*02
***SUBJECT:*** Linda County Water District 2010 Urban Water Management Plan

***VIA:*** ☐ Fax ## pgs. (inc. cover) ☒ USPS ☐ Other (please specify)

***PLEASE FIND ENCLOSED:***

| Copies | Date | No. | Description |
|---|---|---|---|
| 1 | | 1 | CD - Linda County Water District 2010 Urban Water Management Plan |

***THESE ARE SUBMITTED AS CHECKED BELOW:***

☒ As requested
☐ For information and coordination
☐ Return material when review complete
☐ Return after loan to us
☐ For approval by: _____ Return to:
☐ For review and comment by: _____ Return to: _____
☐ Other: _____

***REMARKS:***

Signed: James Bowland
James Bowland

Copies to: 1170001*02/6.04



© 2005 Kennedy/Jenks Consultants Inc.

**Kennedy/Jenks Consultants**
10850 Gold Center Drive, Suite 350
Rancho Cordova, California 95670
916-858-2700
FAX: 916-858-2754
www.KennedyJenks.com

# Transmittal

***TO:*** Ms. Wendy Hartman
Yuba County – Planning Director
915 8th Street, Suite 123
Marysville, CA 95901

***FROM:*** James Bowland
***DATE:*** 2 August 2011
***K/J #:*** 1170001*02
***SUBJECT:*** Linda County Water District 2010 Urban Water Management Plan

***VIA:*** ☐ Fax ## pgs. (inc. cover) ☒ USPS ☐ Other (please specify)

***PLEASE FIND ENCLOSED:***

| Copies | Date | No. | Description |
|---|---|---|---|
| 1 | | 1 | CD - Linda County Water District 2010 Urban Water Management Plan |

***THESE ARE SUBMITTED AS CHECKED BELOW:***

- ☐ As requested
- ☐ For information and coordination
- ☐ Return material when review complete
- ☐ Return after loan to us
- ☐ For approval by: _____ Return to:
- ☐ For review and comment by: _____ Return to: _____
- ☒ Other: _____

***REMARKS:*** Wendy, Linda County Water District is submitting this copy of the Urban Water Management Plan as required by California Water Code.

Signed: James Bowland
James Bowland

Copies to: 1170001*02/6.04



© 2005 Kennedy/Jenks Consultants Inc.