MADERA IRRIGATION DISTRICT

SBX7-7 SUPPLEMENT REPORT

SUBMITTED TO:

CALIFORNIA DEPARTMENT OF WATER RESOURCES
DIVISION OF STATEWIDE INTEGRATED WATER MANAGEMENT
WATER USE AND EFFICIENCY BRANCH

DECEMBER 18, 2013

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ATTACHMENTS

1 – INTRODUCTION / BACKGROUND

Purpose of Supplement Report

The Madera Irrigation District (District) is a U.S. Bureau of Reclamation (USBR) water supply contractor that receives water from the Friant Division of the Central Valley Project (CVP). The USBR requires all contractors to prepare a water management plan (WMP) in accordance with criteria established by USBR. The District most recently prepared an updated 5-year plan for 2012. The District prepares annual updates each year in compliance with USBR criteria. A copy of the District's 2012 USBR WMP is attached to this report (Attachment 2). Annual updates are available online at http://usbr.agwatercouncil.org.

Water Code §10828 allows agricultural water suppliers subject to the USBR CVPIA/RRA water management plan process to submit their USBR plan for compliance with Senate Bill x7-7 (SBx7-7) provided that: 1) the USBR water management plan has been adopted by the agricultural water supplier and submitted to the USBR within the previous four years, and 2) the USBR has accepted the water management plan as adequate. DWR will accept USBR water management plans that have been accepted as adequate by the USBR within the previous four years but no earlier than January 1, 2009 to satisfy the requirement for preparation of a 2012 AWMP. Agricultural water suppliers that submit their USBR plan must also submit additional documentation to the Department of Water Resources (DWR) for compliance with the SBx7-7 Agricultural Water Measurement Regulations.

This Supplement Report serves as the additional documentation that must be submitted to DWR along with the District's 2012 USBR WMP to comply with the Agricultural Water Measurement Regulations of SBx7-7. SBx7-7 was passed in November 2009 as part of the Delta and Water Reform Legislation package and mandates water conservation, measurement and reporting activities for urban and agricultural water suppliers. SBx7-7 requires agricultural water suppliers to prepare agricultural water management plans and implement Efficient Water Management Practices (EWMP), including water delivery measurement at the field level and volumetric pricing for water that the water supplier delivers to its customers.

The final water measurement regulation prepared by DWR (approved July 11, 2012) requires measurement at the location where the agricultural water supplier transfers control of delivered water to a customer or group of customers. In most cases, the transfer of control occurs at the farm-gate, but the regulation does allow for measurement upstream in a lateral under certain conditions. Regardless of where the measurement is made, the following numeric accuracy standards apply to the volume of delivered water:

- Existing measurement devices shall be certified to be accurate within ±12% by volume.
- New or replacement measurement devices shall be certified to be accurate within ±5% by volume in the laboratory if using a laboratory certification (such as propeller meters) or ±10% by volume in the field if using a device that is non-laboratory certified (such as meter gates).

Note that the required accuracy is by volume. If the measurement device does not totalize the volume delivered, then the water supplier must incorporate flow rate, area and a time factor to calculate the volume delivered and certify the accuracy by volume.

The regulation requires a water supplier to measure water delivery volumes at the individual delivery point or farm-gate, unless measurement is not possible at the farm-gate and must be moved upstream on a lateral because, a) the agricultural water supplier does not have legal access to the delivery points of individual customers (farm-gates) downstream of a point of measurement (such as the lateral head works), or b) the measurement accuracy cannot be met, as approved by an engineer, due to small differentials in water level or large fluctuations in flow rate or velocity that occur during the delivery season at a single farm-gate. If measurement does not occur at the individual farm-gate, the water supplier shall document the criteria used to apportion the volume of water delivered to individual downstream customers.

For existing measurement devices, the regulation provides two options for initial certification of existing accuracy (existing prior to adoption of regulation), and this certification must be submitted to DWR:

a) Field-testing that is completed on a random and statistically representative sample of the existing measurement device by individuals trained in the use of field-testing equipment, and documented in a report approved by an engineer, with field testing performed for a sample of devices following certain criteria. The sample size recommended by DWR is at least 10% of existing devices, with a minimum of 5, and not to exceed 100 individual devices for any particular device type.

b) Documentation by field-inspections and analysis completed for every measurement location to demonstrate that the design and installation standards used for its installation meet the ±12% accuracy standard, and that operation and maintenance protocols meet “best professional practices”. Field-inspections and analysis protocols shall be performed by trained individuals and documented in a report approved by an engineer.

If an existing water measurement device is determined to be out of compliance, the water supplier shall provide a schedule, budget and finance plan for taking corrective action.

SBx7-7 required a water supplier to implement all required EWMPs, including initial certification of farm-gate volumetric delivery accuracy, by July 31, 2012, an unrealistic deadline considering the water measurement regulation was not finalized until July 11, 2012. As a result, the District is submitting this Supplement Report to document a strategy to confirm measurement accuracy by presenting a schedule, financing plan, and budget to comply with the requirements of SBx7-7 within the next three years.

The District is a conjunctive use district, and water users in the District conjunctively use both surface water from the District and private groundwater to supplement the surface water supply. The District delivery system is used to recharge groundwater and deliver water to the growers. During wet years the District also delivers water to basins to promote groundwater recharge. During dry years the water that was previously stored as groundwater is available to be pumped by growers for irrigation. The District's conjunctive use program is described in detail in the District's AB3030 Groundwater Management Plan.

District Water Measurement

As a CVP contractor, the District already measures water at the individual grower turnout and collects a portion of its revenue based on the quantity of water delivered to its growers. On average, the District collects approximately 60% of its revenue through volumetric charges based on the quantity of water delivered, measured in acre-feet, and billed on a monthly basis. The volumetric rate in 2012 was $72.50 per acre-foot. The water rate is set each year and is based on a melded rate of the cost of various water supplies to the District.

A small portion of the District growers who have irrigated parcels of less than 6 acres are known as "flat raters". Flat raters are not based on the quantity of water delivered. The rates and estimated water volumes are shown in the Table 1:

Table 1 – 2012 Flat Rate Water Volumes

Parcel Size (Acres)	2012 Flat Rate	2012 Water Volume (Acre Feet)	% of 2012 Total Water Delivery*
0.01 – 1.49	$308.00	0	0.000%
1.50 – 2.49	$528.00	77.62	0.070%
2.50 – 3.49	$716.00	4.23	0.004%
3.50 – 4.49	$920.00	1.49	0.001%
4.50 – 5.49	$1,124.00	31.03	0.028%
5.50 – 5.99	$1,226.00	13.34	0.012%
	Total	127.71	0.116%

* 2012 Total Water Delivery 110,367 acre feet, see Attachment 2 WMP Table 8.

The District has 1,170 total grower turnouts; 1048 are either metered or measured. 684 of the 1,170 turnouts actively received water in 2013. 672 of the 684 active turnouts are either metered or measured. The District uses three different types of measurement devices at the turnout level - propeller meters, magnetic meters ("mag meters"), and rated pump tests. Since the 2012 USBR WMP was prepared, the District has replaced 50 new propeller meters. 632 or approximately 94% of turnouts are measured with propeller meters, 10 or approximately 1.5% of turnouts are measured with mag meters, 30 or approximately 4.5% are measured with rated pump tests. In most cases, the propeller meter is installed in a meter box at least 10 pipe diameters downstream of the turnout structure gate.

Below is a brief explanation of each type of measurement device used by the District:

1. Propeller Meter

   This type of meter contains a propeller that protrudes into a pipe connected by a cable or shaft to a meter reading. As the water passes by the propeller, the propeller rotates. The number of revolutions is then calibrated for the pipe size to determine a flow rate, and most propeller meters indicate the flow rate and total volume of water delivered. Propeller meters can be saddle-type meters that attach directly to a pipeline, or an open-flow meter that is installed in a meter box or standpipe. Propeller meters are very common and extensively used. Propeller meters require a certain obstruction-free distance upstream and downstream of the meter to ensure accuracy, and a full pipe at the location of the meter is required. Trash in the water is one of the biggest concerns with propeller meters since any trash that accumulates on the propeller can cause the meter to read inaccurately and can cause significant head loss. Trash screens are installed in front of most turnouts and are routinely cleaned by the ditch tender to prevent meter blockage.

2. Mag Meter

   This type of meter works on the physical principle of electromagnetic induction. The magnetic field is applied to the pipe, which results in a potential difference proportional to the flow velocity perpendicular to the flux lines. The digital display on the meter indicates the flow rate as well as volume totalizer. Generally, mag meters are more accurate and require less maintenance than propeller meters because there are no moving parts. However, mag meters are more expensive so they are not as common in the District.

3. Rated Pump

   In some locations the District cannot gravity feed surface water to a parcel, and the water user must use a lift pump to deliver water to the field. Some of these locations have mag meters installed on the pump discharge, but where a meter is not

installed, the District uses the "rated pump" to document the amount of water delivered to the grower. The flow rate of each pump has been measured by the District using a C.W.Cox meter to measure the velocity and the District has "rated" the pump with a known delivery flow rate. The flow rate of the pump is multiplied by the time the pump is run to determine the quantity of water delivered for each irrigation. This pump flow rate is checked every few years by the District to verify or refine the "rating" of the pump.

Current Status of Other EWMP Compliance

The District has already implemented the “conditional” EWMPs identified in Water Code §10608.48 that are cost effective and technically feasible. EWMPs already implemented by the District and discussed in the District’s 2012 USBR WMP include:

- No. 4: Incentive pricing *(Sec. 3B4)*
- No. 5: Canal lining/piping and regulatory reservoirs *(Sec. 3B5)*
- No. 6: Increase flexibility in water ordering/delivery *(Sec. 3B6)*
- No. 7: Construct and operate spill and tail water recovery systems *(Sec. 3B7)*
- No. 8: Optimize conjunctive use *(Sec. 3B9)*
- No. 9: Automate distribution system structures *(Sec. 3B10)*
- No. 10: Facilitate or promote water user pump testing *(Sec. 3B11)*
- No. 11: Designate a water conservation coordinator *(Sec. 3A2)*
- No. 12: Water management services to customers *(Sec. 3A3)*
- No. 14: Supplier pump efficiency *(Sec. 3A5)*

The EWMPs that do not apply include:

- No. 1: Facilitate alternative land use *(Sec. 3B1)*
- No. 2: Facilitate use of available recycled urban wastewater *(Sec. 3B2)*
    - The City of Madera has been working on a recycled wastewater project that the District, in the future, could participate in once the City’s permitting is complete.

The "conditional" EWMPs that were not thoroughly addressed by the District in the 2012 USBR WMP include:

- No. 3: Facilitate the financing of capital improvements for on-farm irrigation systems *(Sec. 3B3)*
    - The District encourages growers to improve on-farm irrigation systems by providing industry resources on the District website: http://www.madera-id.org/index.php/information-for-growers
    - MID will continue to replace antiquated meters for on-farm turnouts. 178 open-flow Badger propeller meters are scheduled for replacement within

the next 3-5 years. The future replacement meters will be paid for by MID or other grant funding if available.

- No. 13: Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.
    - The District is a USBR CVP contractor and as such, is subject to the water delivery rules and regulations imposed by the USBR. The District has very little ability to impact USBR policies and regulations. The District does stay engaged in issues that affect the District's water supply, such as the San Joaquin River Restoration Settlement, and fights to protect its water supply.

2 – SUPPORTING DOCUMENTATION

Agricultural Water Measurement Regulation Documentation (as applicable)

A. Legal Certification and Apportionment Required for Water Measurement - Lack of Legal Access to Farm-gate

Not applicable - the District has legal access to measure water at the farm-gate.

B. Engineer Certification and Apportionment Required for Water Measurement - Technically Infeasible

Not applicable – the District measures water at each farm-gate with the exception of the flat raters as mentioned above. There are no other turnout locations that are technically infeasible to measure.

C. Description of Water Measurement Best Professional Practices

Description of District Operations

The District has a scheduled demand irrigation delivery system. Water users order water with the District before 2:00 pm for delivery on the following day for the period of time requested. The water user notifies the District of their desired shutoff time before 2:00 pm and shuts off at the requested time on the next day. District ditch tenders oversee all operations. When the ditch tender is unavailable because of system demands, water users are allowed to open and close their own gates at the scheduled time. The water user has been trained by District staff of how far to open the gate for the desired flow rate. Flexibility in start time and shutoff times are explained in detail in the District's Rules and Regulations. Violations of the operating rules and regulations may be cause to suspend water deliveries. A ditch tender coordinates water deliveries every day.

The District has invested a tremendous amount of money in improving the distribution system to allow the District to operate on a scheduled demand system. The District has installed four ITRC Flap Gates to stabilize water levels in the canal system and devices to measure flows in critical sections of the system. The District has three automated flume (overshot) gates with Supervisory Control and Data Acquisition (SCADA) and has plans to install 3 more within the next two years. Also, 14 new automated meters will be installed and connected to the District's SCADA system. The SCADA software allows the District to remotely monitor and control the head of the Big Main system at the Franchi Dam, the Main I Head, and the Main II at Bishel Weir on a real-time basis. The District has also constructed the Lateral 32.2 regulating basin and continues to investigate locations that would improve the efficiency of the District and provide more flexible and consistent deliveries.

A standard turnout consists of a canal gate and an open flow propeller meter installed in a meter box downstream. In locations where pumps are necessary for water delivery and the location is metered, an in-line propeller meter or mag meter is installed on the pump discharge pipe. There is usually more demand for surface water than there is supply, so proper water management is critical.

Collection of Water Measurement Data

The District has a redundant system for collection of water measurement data. Ditch tenders use iPhones as hand held data recorders in the field. All meter readings are entered into an iPhone application which transfers the data into the District's billing software, *Storm Version 2.05 Water Accounting & Management System*. The office staff compares the revolution count to the meter totalizer and adjusts for any errors. Records are submitted daily by the ditch tenders and kept on file for each grower at the District office for a minimum of ten (10) years. *Storm* is a customizable computer program that was specifically developed for use by agricultural districts. *Storm* manages the water measurement data, calculates the volume of water delivered, and prepares monthly invoices for each grower.

Frequency of Measurements

Measurements are recorded at least once a day. At locations where propeller meters and mag meters are used at the farm-gate, the ditch tender records the cumulative meter reading, and the flow rate is verified when the meter reading is taken. At locations where pump tests are used, the ditch tender records the pump start and stop times and applies the pump rate for total volume delivered.

Method for Determining Irrigated Acres

The District has determined the potential irrigable acreage for each parcel using *Storm* and ArcGIS. Non-irrigable acres (i.e. storage yards, roads, etc.) are not included in the total irrigable acreage. The District collects crop information from the Madera County Ag Commissioner each year.

Quality Assurance and Quality Control Procedures

As previously mentioned, the District has quality assurance and quality control (QA/QC) procedures for collecting water measurement data. The ditch tenders enter the data using iPhones and the office staff reviews for inconsistencies and adjusts for any data entry errors.

A range of expected flow rate has been established by the District for each individual turnout. The *Storm* program checks for exceptions if the recorded flow rate is outside the expected range for that turnout and prepares an exception report that is reviewed by District staff for corrective action. *Storm* can also check for exceptions regarding propeller meter readings as noted below.

The District has an online account system for users to view their water usage at each metered location. Water measurement data is posted on the District website within 2 days of measurement, allowing the District water users to track their water use on a nearly real-time basis. Billing information is available by turnout on the website, as well as information from the previous year so growers can compare their water deliveries. This is one of the best means of QA/QC because the growers generally know how much water they are delivering and they do not want to be overcharged.

D. Documentation of Water Measurement Conversion to Volume

The method of converting water measurement to volume utilized by the District depends on the type of water measurement device:

- Propeller Meters – the type of propeller meters used by the District automatically accumulate the volume of water delivered at that location. The District records the flow rate and the cumulative volume meter reading each time a propeller meter is read. If a meter plugs and the accumulation of volume delivered stops in between readings, the recorded flow rate is utilized to estimate the volume delivered over the time frame between readings. The *Storm* software automatically calculates the expected volume that would have been delivered based on the flow rate and time duration, and compares that to the difference in meter readings. Any significant variance is flagged for the District to review and override the meter reading difference if needed.
- Mag Meters – the type of mag meters used by the District automatically accumulate the volume of water delivered at that location. The District records the flow rate and the cumulative volume meter reading each time a mag meter is read.
- Rated Pumps – the volume for the rated pumps is determined by multiplying the standard flow rate for that pump by the time of scheduled delivery. Ditch tenders confirm that on-off times are followed in the field as scheduled.

E. Device Corrective Action Plan Required for Water Measurement

At this time it is unknown what, if any, corrective action the District will need to take to comply with the accuracy requirements of SBx7-7. The final water measurement regulation was adopted so late in the year (July 11, 2012) that the District was unable to evaluate any water measurement devices during the 2012 irrigation season before water deliveries were shut off in September. During the 2013 irrigation season, the SBx7-7 initial supplement report was being drafted. The District has developed the following plan to determine what corrective action may be required:

- The District will field inspect every measurement device within the next three years, averaging over two hundred turnouts per year. A professional engineer

will develop a work plan for field inspection and analysis of devices, including a check list and protocols for field inspection by District staff.

- A professional engineer will train selected District staff to develop the level of confidence required to perform the field inspection and analysis (e.g., procedures, measurements, identification of measurement device types and features, visual inspection, observations, pictures (if necessary), etc.).
- District staff will field-inspect and perform analysis of all existing measurement devices in the District utilizing the developed checklist, and prepare a field inspection report. In addition to noting data collection procedures, it is anticipated that District staff will, among other things, identify the specific information for each type of measurement device, such as age and condition, consistency with desired installation parameters, maintenance and replacement procedures, etc.
- During the irrigation off-season, all meters will be removed from the field and returned to the District's meter room at the MID main office. MID's meter technicians will service, recalibrate, and perform dry bench tests on all open flow propeller meters.

Following the field inspection and analysis each year, a device corrective action plan will be developed for the following year that documents the repair or replacement of devices that require corrective action to meet the accuracy requirements of SBx7-7, and a budget will be developed for implementation by the District during the following winter maintenance season.

It is expected that the majority of the measurement devices currently in use will meet the ±12% accuracy requirement, although it is likely that some devices will be identified that will require corrective action to comply with the accuracy requirements. The District will evaluate the accuracy of the current methodology for rated pumps to determine if propeller meters are required at some locations.

3 – SCHEDULE, FINANCE PLAN, BUDGET

Schedule

The District has developed the attached schedule for inspecting devices and developing a device corrective action plan to comply with SBx7-7 (Attachment 1). Work will begin in 2014 and will be substantially complete by the end of the three year period.

As previously discussed, the District is already in compliance with the "Conditional" EWMPs, many of which are on-going.

Finance Plan

The District's water measurement program, on-going maintenance and operations (O&M) costs are funded through the District's water assessments and volumetric charges. Compliance with the "conditional" EWMPs has already been incorporated into the District's operating budget as discussed in the 2012 WMP. The District's water measurement improvement program and optimizing conjunctive use make up the majority of the District's EWMP budget. The District has been implementing these EWMPs on an on-going basis and will continue to do so.

If it is determined that corrective action and installation of a propeller meter is required at a location, the District would pay for the cost of the water meter, and will install and maintain the meter at no cost to the grower.

Budget

The District currently budgets approximately $30,000 each year for turnout measurement improvements. At this time it is not known how much additional capital will be required to comply with SBx7-7. Each year when the field inspection and analysis is completed on that year's group of turnouts, a device corrective action plan will be developed that identifies what improvements are required at each turnout and what the estimated cost will be. Specific budgets will be developed each year as part of the device corrective action plan.

MADERA IRRIGATION DISTRICT

SBX7-7 SUPPLEMENT REPORT

ATTACHMENT 1

PROPOSED SCHEDULE

Madera Irrigation District
SBx7-7 Water Measurement Compliance

Proposed Schedule
Device Inspection and Corrective Action Plan Implementation

#	Description	Duration	2013			2014												2015												2016												2017		
			10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Task 1 - Initial SBx7-7 Supplement Report		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1	Preparation of Supplemental Report	Oct - Dec 2013																																									
1.2	Submit Supplement to DWR along with USBR WMP	12/31/2013																																									
Task 2 - Water Measurement Compliance		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.1	Develop workplan and field inspection checklist	Jan - Feb 2014																																								
2.2	Field inspect typical devices, refine checklist	Feb - Mar 2014																																								
2.3	Train MID staff for field inspection & analysis	Feb - Mar 2014																																								
2.4	MID staff field inspect turnouts	Oct - Mar																																									
2.5	*Typical water devliery season*	Mar - Sept																																								
2.6	MID test, recalibrate, repair/replace identified measurement devices	Oct - Mar																																								
2.7	Prepare updated USBR Water Management Plan	9/1/2013 - 11/30/15																																								
2.8	Prepare Corrective Action and Certification Report	10/1/2013 - 11/30/15																																								
2.9	Prepare updated SBx7-7 Supplement Report	11/1/2013 - 12/31/15																																								
2.10	Submit updated USBR WMP and SBx7-7 Supplement	12/31/2015																																								

MADERA IRRIGATION DISTRICT

SBX7-7 SUPPLEMENT REPORT

ATTACHMENT 2

2012 USBR WATER MANAGEMENT PLAN

Water Management Plan
(5-year Update 2012)

Prepared for:

U.S. Department of the Interior, Bureau of Reclamation
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December 12, 2013 (Second Draft Submittal)

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Section 1 Description of the District

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A. HISTORY

Historical use of surface irrigation water in portions of what is now Madera Irrigation District began in the early 1870's. In 1872 Isaac Friedlander obtained water rights on the Fresno River to provide irrigation water to agricultural lands near and to the southwest of what is now the City of Madera. Friedlander augmented these rights with what is called the Big Creek Diversion wherein waters were diverted from the Merced River watershed to the Fresno River watershed. In conjunction with W.S. Chapman in 1875, Friedlander also diverted water from the San Joaquin River watershed to the Fresno River watershed via the "Soquel Diversion". The Madera Canal and Irrigation Company (MC&I) was organized in 1888 with an area of 280,000 acres as the successor to Friedlander and Chapman and several of their successor companies. The MC&I Company had plans to obtain a water supply by constructions of a dam on the San Joaquin River near Friant. These plans were not realized because of litigation resulting from opposition on the part of downstream water users, and the district was dissolved in 1896.

The Madera Irrigation District totaling approximately 352,000 acres was formed in 1920. The formation was the effort of a 40 member committee organized to bring water to the Madera area. In 1920 the District purchased gravel pit lands to supply aggregate for construction of the proposed Friant Dam. The District performed studies, passed a bond issue, and filed for water rights with the purpose of constructing Friant Dam and a distribution system. Extensive litigation with Miller & Lux continued to barricade the project for many years. The District ultimately cancelled the bond issue and excluded some 179,500 acres of the original District. The District was then reduced to about 172,500 acres. The District, next, negotiated with the State Water Authority for several years hoping to obtain a cooperative venture for the construction of Friant Dam. This proved to be fruitless.

On May 24, 1939, MID contracted with the Bureau of Reclamation, and in exchange for certain property and interests in water filings on the San Joaquin River, the District was granted a water supply under conditions stipulated, of not to exceed 270,000 acre feet per year for a District area of 172,500 acres. In 1949 a tract of 46,500 acres was excluded from the District to permit the formation of the Chowchilla Water District, and subsequent exclusions reduced the District to a gross area of 112,500 acres, with a net irrigated area of approximately 100,000 acres. Deliveries of Central Valley Project (CVP) water to the District were made annually under temporary contracts from 1944 until 1951, when a permanent contract was entered into with the United States. The contract provides for 85,000 acre feet of Class 1 and 186,000 acre feet of Class 2 water. In 1951, the District entered into a contract with the United States for the construction of a distribution system by the Bureau of Reclamation at a cost of $8,320,000. Construction by the Bureau under this contract was completed in March 1955. Due to

rising construction costs, the original $8,320,000 constructed canals for approximately one half of the District. In 1959 the District entered into a second construction contract of $5,177,000 with the Bureau of Reclamation to extend the distribution system to serve the majority of the District. Construction of the Hidden Dam on the Fresno River was completed in 1972 and opened for public use in 1975. The District's contract with the Bureau called for the District to annex up to 15,000 acres for the 24,000 acre feet projected average yield for new water generated from the project through Fresno River regulation. The District joined the Mid Valley Water Authority in 1983 in an attempt to obtain additional water supplies for the District. When it became apparent that there would be no water for the Mid Valley group, the District withdrew membership in 1991. Over the years, the District's size has had many fluctuations, and is currently 129,180 acres in size.

1. Date district formed: 1920 *Date of first Reclamation contract*: 1939
Original size (acres): 352,000 *Current year (last complete calendar year)*: 2012

2. Current size, population, and irrigated acres

Year	2012
Size (acres)	129,180
Population served (urban connections)	None
Irrigated acres served	99,203

3. Water supplies received in 2012

Water Source	*AF*
Federal urban water (Table 1)	0
Federal agricultural water (Table 1)	65,055
State water (Table 1)	0
Other wholesaler (define) (Table 1)	0
Local surface water (Table 1)	0
Upslope drain water (Table 1)	0
District groundwater (Table 2)	0
Banked water (Table 1)	0
Transferred water into District (Table 1)	5,000
Wheeled water (Table 1)	1,211
Recycled water (Table 3)	0
Other – Hensley Lake, Big Creek, & other prior water rights (Table 1)	32,837
Other – Soquel (Table 1)	6,266
Total	110,369

4. Annual entitlement under each right and/or contract

Contract	*AF*	*Source*	*Contract #*	*Availability*
Reclamation Agriculture Class I AF/Y	85,000	Federal	175R2891-IRd	Firm as available
Reclamation Agriculture Class II AF/Y	186,000	Federal	175R2891-IRd	Firm as available
Hensley Lake AF/Y	Varies 24,000+	Project Water	14-06-200-4020E	Fluctuation annual yield
Other (Pre-1914) AF/Y	Varies	Prior rights		Fluctuation annual yield

Note: These contracts do not have expiration dates.

5. Anticipated land-use changes. For Ag contractors, also include changes in irrigated acres.
None.

6. Cropping patterns (Agricultural only)
List of current crops (crops with 5% or less of total acreage) can be combined in the 'Other' category.

Crop Name	*1987 Acres*	*1998 Acres*	*2007 Acres*	*2012 Acres*
Almonds	13,171	19,669	25,693	30,497
Cotton	6,531	1,736	N/A	137
Field Crops	N/A	N/A	4,098	119
Fruit Trees	N/A	8,517	5,374	4,969
Grains	7,485	6,275	N/A	4,049
Grapes	53,819	57,867	45,512	43,121
Grasses	6,072	N/A	8,521	372
Pistachios	N/A	N/A	2,830	7,704
Other (<5%)	8,426	13,703	2,049	8,235
Total	95,504	107,767	94,077	99,203

7. Major irrigation methods (by acreage) (Agricultural only)

Irrigation Method	*1987 Acres*	*1998 Acres*	*2007 Acres*	*2012 Acres*[1]
Drip	N/A	19,573	23,347	74,217
Micro-spray	N/A	12,615	19,470	
Sprinkler	N/A	2,462	750	137
Furrow	N/A	5,912	N/A	N/A
Border strip	N/A	66,582	N/A	N/A
Dry-land	N/A	16	N/A	N/A
Surface	N/A	N/A	50,510	24,849
Other	N/A	607	N/A	N/A
Total	95,504	107,767	94,077	99,203

[1] 2012 acreages for each irrigation method are based upon known crop acreages and assumed crop irrigation methods from the Irrigation Training & Research Center (ITRC).

B. LOCATION AND FACILITIES

See Attachment A for maps containing the following: incoming flow locations, turnouts (internal flow), and outflow (spill) points, conveyance system, storage facilities, operational loss recovery system, district wells and lift pumps, water quality monitoring locations, and groundwater facilities.

1. Incoming flow locations and measurement methods

I.D.	*Location Name*	*Type of Measurement*	**Accuracy*	*Latitude GPS Coordinate*	*Longitude GPS Coordinate*
I-1	Madera Canal	Parshall Flume	±3-5%	37.122998	-120.081433
I-2	Madera Canal	Weir	±3-5%	37.075156	-119.989547
I-3	Island Tract	Pressure Transducer	±2%	37.011742	-119.995572
I-4	Franchi Dam	Rubicon Flume Gate	±2.5%	36.984478	-120.025723
I-5	Madera Canal 6.2	Parshall Flume	±3-5%	36.964943	-119.779461

** Accuracies are estimated and have not been field tested.*

2. Current year Agricultural Conveyance System

Miles Unlined Canal	*Miles Clay-lined Canal*	*Miles Piped*	*Miles Creeks/rivers*
74	121	140	50

3. Current year Urban Distribution System

None

4. Storage facilities (tanks, reservoirs, regulating reservoirs)

No.	**Basin Name**	**Capacity (ac-ft)**	**Owner**
1	Abshire	79	City
2	Agajanian	57	City
3	Airport Drive	3	City
4	Allende	N/A	Private
5	Avenue 13	12	City
6	Aviation	N/A	MID
7	Aviation	30	City
8	Basila	30	City
9	Beeman	N/A	MID
10	Berry/Home Ranch	50	City
11	Burgess	N/A	MID
12	Cal Trans	4	City
13	Clemmenson	1	City
14	Country Club	9	City
15	Deerwood	7	City
16	Ducor	5	City
17	Ellis	24	City
18	Elm	31	City
19	Evapco	35	City
20	Fairgrounds	16	City

No.	Basin Name	Capacity (ac-ft)	Owner
21	Foxglove	48	City
22	Georgia P Lagoons	8	City
23	Georgia P/Colorbox	12	City
24	Golf Course	N/A	City
25	Hazel	28	City
26	Industrial	48	City
27	Kennedy	6	City
28	Knox	16	City
29	Lake Madera	N/A	MID
30	Las Palmas	178	City
31	Lateral 32.2 Basin	N/A	MID
32	MLK	26	City
33	Moesian	90	City
34	Nishimoto	8	City
35	Pamela	6	City
36	Prosperi	160	City
37	Road 26	97	City
38	Russell	N/A	MID
39	San Sebastian	12	City
40	Sharon	15	City
41	Sherwood	77	City
42	South E Street	0	City
43	Stadium	109	City
44	Tulare	16	City
45	Valley Vista	2	City

5. Description of the agricultural spill recovery system and outflow points.

The District has an agreement with Gravelly Ford Water District to provide water through our system. Any remaining flow that exits the District is made available for prior rights, customer use, or groundwater recharge.

6. Agricultural delivery system operation (check all that apply)

Scheduled	*Rotation*	*Other (describe)*
Yes	Yes	Yes, see below

MID has a virtual "on-demand" delivery system. Flows within the District canals are changed daily to reflect water use demands by District growers. Each year the District's Board of Directors adopts a Crop Water Distribution Policy, Attachment L. This, in conjunction with Attachment B, the Rules and Regulations for Distribution of Water and Maintenance of Ditches and Pipelines, establishes the delivery system operation for each year. If demands exceed capacity of the system, this may require the distribution system to be operated on a restricted basis which means that new water starts may not be made until a shut off occurs. When the system is running in a capacity mode, there is a seven (7) day run time on each turnout. The District will maintain a priority list for starts during such periods and

starts will follow a first-come, first-serve basis. Growers need to be aware that water may be available earlier than a start request date and time. This water would be first offered to the grower at the top of the priority list. If the water user is unable to take the water at that time, then the water will be offered to the next user in line. The District cannot hold the water in the system just to accommodate a start order.

7. Restrictions on water source(s)

Source	*Restriction*	*Cause of Restriction*	*Effect on Operations*
Hensley Lake	Does not allow for any storage in May through November	Flood control parameters	Release of low flows for non-beneficial use
Millerton Lake	Amount of water allocations	Reservoir operations	Class I and II amounts unknown until late spring.

8. Proposed changes or additions to facilities and operations for the next 5 years
Under the 2011 USBR Field Services grant, three new Rubicon Flume Gates with supervisory control and data acquisition (SCADA) capabilities are proposed to be installed on the Big Main at the Hospital Weir, on the Main I at the head, and on the Main II at the Bishel Weir.

Under the 2011 Integrated Regional Water Management (IRWMP) Proposition 84 Grant, MID will eradicate *Arundo Donax* and remove sediment along Berenda, Cottonwood, and Dry Creeks in Madera County.

Under the 2013 USBR WaterSMART grant, 10 existing flow monitoring locations will be retrofitted with SCADA capabilities. In addition, the District will purchase and install 23 new flume meters, slip meters, or flume gates with SCADA capabilities. The grant funding will provide the necessary SCADA equipment at the MID office, computer software, and MID staff training.

Various agreements are being contemplated between the City of Madera, County of Madera, and MID for the implementation of a conjunctive use program for storm water and groundwater recharge. The City of Madera and MID anticipate finalizing an agreement for reclamation of recycled water. Infrastructure has been constructed and operation will commence after all permits are obtained by the City.

The District has begun discussions with various neighboring agencies to improve portions of the MID distribution system. Since 2007, the District's fiscal conditions have thwarted cooperative efforts for infrastructure improvement projects. However, the District continues to look for ways to fund these improvements.

C. TOPOGRAPHY AND SOILS

1. Topography of the district and its impact on water operations and management.
Lands in the District are gently sloping from the northeast to the southwest with a fall of approximately five feet per mile. The District is generally divided into two major areas; the first area contains the recent alluvial fans and flood plains, the second area contains the older alluvial fans and terraces. The soils of the recent alluvial fans and flood plains cover the area from the Fresno River south to the San Joaquin River, and consist of the Pachappa-Grangeville and the Hanford-Tujunga soil associations.

These soils are categorized as Classes A and B soils and generally exhibit high surface and subsurface permeability. The soils of the older alluvial fans and terraces cover the ten mile wide area from the Fresno River north to the District's northern boundary. The predominant soil association for this northern area is the San Joaquin-Madera. These soils are generally Classes C and D.

2. District soil association map (Agricultural only)
See Attachment A, District Soils Map

Soil Association	*Estimated Acres*[1]	*Effect of Water Operations and Management*
Cometa sandy loams	7,523	Deep soil ripping required for effective irrigation of permanent crops.
Grangeville fine sandy loam	7,672	None
Hanford (Ripperdan) fine sandy loam	18,478	None
Hanford fine sandy loam	8,417	None
Pachappa fine sandy loam	9,176	None
San Joaquin sandy loams	18,340	Deep soil ripping required for effective irrigation of permanent crops.
Tujunga loamy sand	10,338	None
Other	49,236	None

[1] Source: USDA Natural Resources Conservation Service (NRCS) web soil survey.

3. Agricultural limitations resulting from soil problems (Agricultural only)
There are no limitations resulting from soil problems.

D. CLIMATE

1. General climate of the district service area
MID is centrally located on the eastern edge of the San Joaquin Valley. The San Joaquin Valley is bound by the Sierra Nevada Mountains to the east and by the Coast Range to the west. The climate of the District is dry with mild winters and hot summers. The average annual rainfall is 11.5 inches. 90% of the annual precipitation falls within the six month period of November through April. The area is generally isolated from marine effects of the coast, and the average daily maximum temperature in July is 97 degrees Fahrenheit (°F) with highs occasionally reaching 112°F. In summer, nighttime temperatures are generally 30-35°F lower than daytime temperatures. Humidity readings during this period are also low, usually 15-20%. This is contrasted with humidity readings near 50% during the morning hours of December and January. During foggy periods, humidity readings exceed 90% and typically reach 100% in the late evening and early morning hours. Inversion layers accompanied by "Tule Fog" are not uncommon during the winter months. The average winter temperatures vary from the high 30's to low 40's at night, and low 50's during the day. During the periods of inversion, the temperatures vary about 5°F between day and night with the highest temperatures in high 30's to low 40's. Minimum readings occasionally drop below freezing during infrequent periods each year. Frost occurs nearly every year beginning in late November to extending through the middle of March.

Weather data shown below is from http://wwwcimis.water.ca.gov/ for period January 1999 through December 2012. Precipitation is in inches (in) and temperature is in degrees Fahrenheit (°F).

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Avg Precip.	1.63	1.64	1.32	0.90	0.36	0.17	0.00	0.00	0.02	0.61	0.74	1.67	9.06
Avg Temp.	44	48	53	57	66	72	77	75	71	61	50	44	60
Max. Temp.	54	60	66	71	81	88	94	92	89	77	64	55	74
Min. Temp	35	37	40	43	50	55	59	57	53	46	39	35	46
ETo	1.05	1.94	3.69	5.05	7.35	8.36	8.63	7.65	5.68	3.59	1.78	1.07	55.82

Weather station ID *Madera* *Data period: Year* *1999* *to Year* *2012*

ET Station ID *145* *Average annual frost-free days:* *320-340*

2. Impact of microclimates on water management within the service area
No known microclimates exist with the District.

E. NATURAL AND CULTURAL RESOURCES

1. Natural resource areas within the service area
None.

2. Description of district management of these resources in the past or present
None.

3. Recreational and/or cultural resources areas within the service area
None.

F. OPERATING RULES AND REGULATIONS

1. Operating rules and regulations
See Attachment B, District Rules and Regulations

2. Water allocation policy (Agricultural only)
See Attachment B, Page 2 and Attachment L, 2012 Crop Water Distribution Policy.
Summary – MID has a virtual "on-demand" delivery system. Flows within the District canals are changed daily to reflect water use demands by District growers. Each year the District's Board of Directors adopts a Crop Water Distribution Policy, Attachment L. This, in conjunction with Attachment B, the Rules and Regulations for Distribution of Water and Maintenance of Ditches and Pipelines, establishes the delivery system operation for each year. If demands exceed capacity of the system, this may require the distribution system to be operated on a restricted basis which means that new water starts may not be made until a shut off occurs. When the system is running in a capacity mode, there is a seven (7) day run time on each turnout. The District will maintain a priority list for starts during such periods and starts will follow a first-come, first-serve basis. Growers need to be aware that water may be available earlier than a start request date and time. This water would be first offered to the grower at the top of the priority list. If the water user is unable to take the water at that time, then the water will be offered to the next user in line. The District cannot hold the water in the system just to accommodate a start order.

3. Official and actual lead times necessary for water orders and shut-off (Agricultural only)
See Attachment B, District Rules and Regulations, Page 4.
Summary – The District's Operations Department shall be notified not less than three (3) days in advance of time water is to be delivered and at least twenty-four (24) hours prior to termination of delivery. In the event a water user does not need his full requested delivery, that water may be picked-up by another user. If the water cannot be used by someone else, the total volume ordered may be charged to the grower as if he actually used the whole amount.

4. Policies regarding return flows (surface and subsurface drainage from farms) and outflow (Agricultural only)
See Attachment B, District Rules and Regulations, Pages 7, 10-11.
Summary – Refer to Sections 8 and 14 of the Rules and Regulations.

5. Policies on water transfers by the district and its customers
See Attachment L, 2012 Crop Water Distribution Policy.
Summary – Water transfer of any allocation or release of any surplus crop water allocation shall be prohibited unless otherwise provided under the annual Crop Water Distribution Policy, Attachment L.

G. WATER MEASUREMENT, PRICING, AND BILLING

1. Agricultural Customers
Refer to BMP A.1. Information on water measurement for agricultural contractors is completed under BMP A.1 on pages 18-22.

2. Urban Customers
None.

3. Agricultural and Urban Rates
a. Current year agricultural and /or urban water charges - including rate structures and billing frequency
See Attachment L, 2012 Crop Distribution Policy for current year rate ordinance.

b. Annual charges collected from agricultural customers in 2012.

Volumetric Charges			
Charge type	*Charge units*	*Units billed during year*	*$ collected ($ times units)*
Regular	average $72.50 per acre-feet	67,878 acre-feet	$4,921,155
Subordinate	average $321.09 per acre-feet	9,763 acre-feet	$3,134,802
Wheeling Fees	$55.00 per acre-feet	975 acre-feet[1]	$53,625
Standby	$15.00 per acre	97,114 acres[2]	$1,456,710
Assessment	See schedule below	129,180 acres	$5,532,760

[1] Totals do not match due to losses
[2] Only subordinate lands which take water in a given year are charged "Standby"

Assessment Fee Schedule

Category	*District Assessment*	*9D (Proposition 218) Assessments*
1 – Industrial and commercial	$26.43/acre	$29.17/acre
2 – Eligible to receive water	$22.65/acre	$24.21/acre
3 – No District service	$18.41/acre	$18.62/acre
4 – Rivers, creeks, and roads	$4.24/acre	$5.59/acre
7 – Eligible subordinate	$22.65/acre	$29.17/acre
City	* $0.0036/sq.ft.	0

* Based upon an average 8,000 square foot City lot

c. Describe the contractor's record management system

See Attachment D, District Sample Bills.

The ditch tender performs a meter revolution count and records the meter totalizer and time of day. For turnouts requiring pump tests, the ditch tender notes the hours of operation per day. All meter readings are entered into an iPhone application which transfers the data into the District's billing software, Storm version 2.05 Water Accounting & Management System. The office staff compares the revolution count to the meter totalizer and adjusts for any errors. Records are submitted daily by the ditch tenders and kept on file for each customer at the District office for a minimum of ten (10) years. Monthly and year-end statements are mailed to the grower.

H. WATER SHORTAGE ALLOCATION POLICIES

1. Current year water shortage policies or shortage response plan - specifying how reduced water supplies are allocated

See Attachment E, District Water Shortage Plan, and Attachment M, San Joaquin Valley Groundwater Basin (DWR).

The District has an "on demand" delivery system and water deliveries are made on a first-come, first-serve basis. Historically, the District would deliver water during the summer months for a definite season and restrict daily system flows as necessary to match the length of the season. In dry years, a 7 day rotation period for water deliveries is enacted by the Board of Directors to reduce the potential for spill and to extend the District's season. In short years, on-farm groundwater pumping makes up any surface water supply deficiency.

2. Current year policies that address wasteful use of water and enforcement methods

See Attachment B, District Rules and Regulations, Page 7.

Summary - Growers wasting water, either willfully, carelessly or on account of defective or inadequate on-farm systems or structures, or because of inadequate preparation of the land for irrigation, may be refused further services immediately upon notice given by the District's authorized agent and continuing until the condition or practice is remedied. Early shut-offs by the District to prevent waste and/or unreasonable use by the grower could result in additional water charges.

I. EVALUATE POLICIES OF REGULATORY AGENCIES AFFECTING THE CONTRACTOR AND IDENTIFY POLICIES THAT INHIBIT GOOD WATER MANAGEMENT

Discuss possible modifications to policies and solutions for improved water management.
The District is actively working with local, state, and federal regulatory agencies to promote best water management practices for the following:

1. Aquatic Pesticides Application Plan (APAP) - Water Quality Order No. 2004-0009-DWQ for National Pollutant Discharge Elimination System (NPDES).
2. SBx7-7 Agricultural Water Measurement Regulation.
3. AB3030 Groundwater Management Plan

The District also works cooperatively with permitting agencies including Madera County, California Department of Fish and Wildlife (DFW), and Army Corps of Engineers on various projects, grants, and other maintenance and operations activities.

Section 2 Inventory of Water Resources

A. SURFACE WATER SUPPLY

1. Surface water supplies in acre feet, imported and originating within the service area, by month.
See Section 5, Water Inventory Tables, Table 1

2. Amount of water delivered to the District by each of the District sources for the last 10 years.
See Section 5, Water Inventory Tables, Table 8.

B. GROUNDWATER SUPPLY

1. Groundwater extracted by the district and delivered, by month (Table 2)
See Section 5, Water Inventory Tables, Table 2.
None

2. Groundwater basin(s) that underlies the service area.

Name	*Size (Square Miles)*	*Useable Capacity (AF)*	*Safe Yield (AF/Y)*
San Joaquin Valley Groundwater Basin Madera Subbasin[1]	614	18,500,000 to a depth of 300 feet	unknown

[1] Source: Attachment M, San Joaquin Valley Groundwater Basin (DWR)

3. Map of district-operated wells and managed groundwater recharge areas
The District does not operate any wells. All wells within the District are privately owned.

4. Description of conjunctive use of surface and groundwater.
Information necessary to adequately describe groundwater conjunctive use programs includes:

a. Determination of the groundwater quality (i.e., is the groundwater quality adequate for direct use or is blending required?).
See Attachment F, AB3030 Groundwater Management Plan, Page 15.
USBR Testing from 1959-1989 determined excellent groundwater quality meeting secondary drinking water standards. In more recent years, some areas have experienced problems with Dibromochloropropane (DBCP) and salt brine contamination, but the concentration of DBCP in the groundwater is decreasing.

b. The amount of groundwater storage capacity currently available and how much additional storage could be available by extracting groundwater for use.
See B.2. above.

c. The location of existing and potential recharge sites (spreading basins, in-stream, or injection wells) and identification of the soil types and resulting recharge rates.
The District has many existing recharge basins throughout the District as listed in Section 1, B.4. The basin soil types and recharge rates have not been tested.

d. Determination of hydraulic continuity between the possible recharge and extraction areas.

The District is a conjunctive use irrigation district of surface water and groundwater. Since the surface water supply is insufficient to provide all the water demand for the irrigated lands in the District, groundwater sources are utilized to supplement the surface water supplies. Seepage through recharge basins and open channel canals are sources of groundwater recharge. Therefore, there is hydraulic continuity between recharge and extraction areas.

e. Identification of possible sources of recharge water and the quantities, qualities, and period of availability for each source.

The District recharges groundwater through its basins and open channel canals. On average, the District losses are approximately 35% of its water supply of which the majority is canal and basin seepage. The seepage occurs primarily during the irrigation season and, to a lesser degree, during winter storm events. The recharged groundwater can be pumped by growers at any time.

f. For districts without district-owned wells, describe how the district receives compensation from the beneficiaries of the recharged groundwater.

The District does not own any wells. The District does not receive compensation from beneficiaries of the recharged groundwater.

5. Groundwater Management Plan

See Attachment F, AB3030 Groundwater Management Plan.

The District is currently working with Madera County, City of Madera, Gravelly Ford Water District, City of Chowchilla, and other stakeholders in developing an updated Groundwater Management Plan for Madera County.

6. Groundwater Banking Plan

See Attachment G, Groundwater Banking Plan.

The District will be implementing a groundwater banking program at the Madera Ranch. The District is in the process of completing the final permitting requirements. This project will include facilities to store water in and recover water from the underlying aquifer. The proposed water bank will have a total storage capacity of 250,000 acre-feet and could recharge or recover up to 55,000 acre-feet of water annually.

C. OTHER WATER SUPPLIES

1. "Other" water used as part of the water supply – Describe supply

See Section 5, Water Inventory Tables, Table 1.

D. SOURCE WATER QUALITY MONITORING PRACTICES

1. Potable Water Quality (Urban only)

See Attachment H – District Annual Potable Water Quality Report.

None.

2. Agricultural water quality concerns: *Yes* _X_ *No* _____

The water quality concerns include residual traces of Copper, DBCP, and salt brine contamination.

3. Description of the agricultural water quality testing program and the role of each participant, including the district, in the program

The District currently has two water quality testing programs, but no available data yet. The District has adopted the Aquatic Pesticides Application Plan (APAP) which includes water quality testing in accordance with the Water Quality Order No. 2004-0009-DWQ for National Pollutant Discharge Elimination System (NPDES). Implementation funding of the APAP will be provided by the District. Also, the Madera Ranch Monitoring and Operational Constraint Plan (MOCP) requires groundwater and surface water quality testing. MID will monitor the quality of water entering the Madera Ranch for recharge, the quality of water in wells, and the quality of recovered water leaving the ranch. Individual growers must comply with the Regional Water Quality Control Board (RWQCB) regulations for on-farm surface and subsurface water quality.

4. *Current water quality monitoring programs for surface water by source (Agricultural only)*

Analyses Performed	*Frequency*	*Concentration Range*	*Average*
None			

Current water quality monitoring programs for groundwater by source (Agricultural only)

Analyses Performed	*Frequency*	*Concentration Range*	*Average*
None			

E. WATER USES WITHIN THE DISTRICT

1. Agricultural

See Section 5, Water Inventory Tables, Table 5 - Crop Water Needs

2. Types of irrigation systems used for each crop in current year

Crop name	*Total Acres*	*Surface - acres*	*Furrow - acres*	*Sprinkler – acres*	*Drip/Micro - acres*	*Multiple Methods - acres*
Almonds	30,497				30,497	
Cotton	137		137			
Field Crops	119	119				
Fruit Trees	4,969				4,969	
Grains	4,049	4,049				
Grapes	43,121	17,248			25,873	
Grasses	372	372				
Pistachios	7, 704				7,704	
Other (<5%)	8,235	8,235				
TOTAL	99,203	30,023	137		69,043	

3. *Urban use by customer type in current year*

None.

4. Urban Wastewater Collection/Treatment Systems serving the service area

None.

5. Groundwater recharge in current year (Table 6)

Recharge Area	*Method of Recharge*	*AF*	*Method of Retrieval*
See Section 1, B.4	Gravity	Unknown	No groundwater retrieval
	Total	Unknown	

The District recharges the groundwater table in various percolation basins within the District that are owned by the City or MID (see Section 1, B.4). Most of these basins are terminal basins and are not equipped to retrieve groundwater. The District does not have wells and does not pump groundwater.

*6a. Transfers and exchanges **into** the service area in current year – (Table 1)*

From Whom	*To Whom*	*AF*	*Use*
Fresno Irrigation District	MID	5,000	Irrigation
	Total	5,000	

*6b. Transfers and exchanges **out** of the service area in current year – (Table 6)*

From Whom	*To Whom*	*AF*	*Use*
None			
	Total		

7. Wheeling, or other transactions in and out of the district boundaries – (Table 6)

From Whom	*To Whom*	*AF*	*Use*
Chowchilla Water District	CWD grower	211	Irrigation
Orange Cove Irrigation District	MID grower	400	Irrigation
Tulare Irrigation District	MID grower	600	Irrigation
	Total	1,211	

9. Other uses of water

None.

F. OUTFLOW FROM THE DISTRICT (AGRICULTURAL ONLY)

See Attachment A, MID Facilities Map for the location of surface and subsurface outflow points, outflow measurement points, and outflow water-quality testing locations.

The District does not currently operate any surface or subsurface return (by pumping) for any water that leaves the District.

1. Surface and subsurface drain/outflow - January 1, 2012 through December 31, 2012

Outflow point	*Location description*	*AF*[1]	*Type of measurement*	*Accuracy (%)*	*% of total outflow*	*Acres drained*
O-1	Avenue 17 & Road 15	225	Recorder #2	5%-10%	16%	unknown
O-2	Avenue 15 & Road 16	36	Recorder #4	5%-10%	3%	unknown
O-3	Avenue 9 & Road 22	604	Recorder #10	5%-10%	44%	unknown
O-4	Avenue 5 & Road 23	15	Recorder #11	5%-10%	1%	unknown
O-5	Avenue 6 & Road 29 1/2	491	Recorder #9	5%-10%	36%	unknown

[1] Surface drain/outflow includes urban and rural storm runoff.

Outflow point	*Where the outflow goes (drain, river or other location)*	*Type Reuse (if known)*
O-1	Berenda Creek	Groundwater recharge
O-2	Fresno River	Groundwater recharge
O-3	Cottonwood Creek	Groundwater recharge
O-4	San Joaquin River	Groundwater recharge
O-5	San Joaquin River	Groundwater recharge

2. Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program

The District currently has two water quality testing programs, but no available data yet. The District has adopted the APAP which includes water quality testing in accordance with the Water Quality Order No. 2004-0009-DWQ for NPDES. Implementation funding of the APAP will be provided by the District. Also, the Madera Ranch MOCP requires groundwater and surface water quality testing. MID will monitor the quality of water entering the Madera Ranch for recharge, the quality of water in wells and the quality of recovered water leaving the ranch. Individual growers must comply with the RWQCB regulations for on-farm surface and subsurface water quality.

3. Outflow (surface drainage & spill) Quality Testing Program

None. The APAP water quality testing will begin during the 2013 irrigation season.

Outflow (subsurface drainage) Quality Testing Program

None.

4. Provide a brief discussion of the District's involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants that would significantly degrade water quality in the receiving surface waters.

The District has adopted the APAP which includes water quality testing in accordance with the Water Quality Order No. 2004-0009-DWQ for NPDES.

Districts included in the drainage problem area, as identified in "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)," should also complete Water Inventory Table 7 and Addendum C (include in plan as Attachment J)

G. WATER ACCOUNTING (INVENTORY)

See Section 5, Water Inventory Tables.

Section 3 Best Management Practices (BMPs) for Agricultural Contractors

A. CRITICAL AGRICULTURAL BMPS

1. *Measure the volume of water delivered by the district to each turnout with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6%*
   a. *Number of delivery points (turnouts and connections)* 684
   b. *Number of delivery points serving more than one farm* 31
   c. *Number of measured delivery points (meters and measurement devices)* 672
   d. *Percentage of delivered water that was measured at a delivery point* 98.2%
   e. *Total number of delivery points not billed by quantity* 12
   f. *Delivery point measurement device table*

Measurement Type	*Number*	*Accuracy[1] (+/- %)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
Orifices	0	-	-	-	-
Propeller meter	632	10%-12%	Daily[2]	As needed	12
Weirs	0	-	-	-	-
Flumes	0	-	-	-	-
Venturi	0	-	-	-	-
Metered gates	0	-	-	-	-
Acoustic doppler	0	-	-	-	-
Mag meters	10	2%-5%	Daily[2]	As needed	As needed
Pump test	30	10%	Daily[2]	As needed	As needed
Total	672	-	-	-	-

[1] *Documentation verifying the accuracy of measurement devices must be submitted with Plan and included in Attachment C.*
[2] *During irrigation water delivery*

All meters are routinely checked for accuracy by the District's Meter Technician. Should a grower contest the accuracy of the meter, the Meter Technician will make a comparison test with the control meter first, and then request a current meter check by the hydrographer. Should the grower still be unsatisfied, the meter will be sent to the manufacturer for calibration. If the calibration test proves the meter is inaccurate, the District will pay all costs and adjust the grower's water account accordingly. If the meter calibration test proves the meter to be accurate, the grower will be charged the cost of the calibration test. The Meter Technician currently conducts pump tests on 30 delivery points. When cost effective, the District is transitioning to inline propeller or mag meters instead of pump tests for improved accuracy and consistency.

2. Designate a water conservation coordinator to develop and implement the Plan and develop progress reports

Contact Name: Dina Cadenazzi Nolan, PE
Title: Chief of Engineering
Address: 12152 Road 28 ¼, Madera, CA 93637
Telephone: (559) 673-3514
E-mail: dina@madera-id.org

The water conservation coordinator plans, organizes, and directs activities within the District's engineering department. The water conservation coordinator performs professional civil engineering tasks associated with District operations, maintenance and engineering programs, including a variety of special projects. In conjunction with these duties, the water conservation coordinator supervises technical staff and provides technical support for other District departments, and performs related duties as required.

Minimum qualifications are a Bachelor of Science Degree from an accredited college or university in Civil Engineering, or related field, and registration with the State of California as a Professional Engineer.

3. Provide or support the availability of water management services to water users
See Attachment I, Notices of District Education Programs and Services Available to Customers.

a. On-Farm Evaluations

1) On farm irrigation and drainage system evaluations using a mobile lab type assessment

On farm irrigation and drainage system evaluations using a mobile lab type assessment are available through the Natural Resources Conservation Service (NRCS). Cal Poly San Luis Obispo Irrigation Training & Research Center (ITRC) and Center for Irrigation Technology at CSU, Fresno also perform these types of field evaluations for the USBR-Mid Pacific Region. Growers may schedule these evaluations by contacting the District office or visiting the District website: http://www.madera-id.org/index.php/information-for-growers

2) Timely field and crop-specific water delivery information to the water user

CIMIS data is available to growers through the CIMIS website: http://wwwcimis.water.ca.gov/cimis/welcome.jsp or the District website: http://www.madera-id.org/index.php/information-for-growers. Madera County Ag Commissioner also provides this information as a service to all growers.

b. Real-time and normal irrigation scheduling and crop ET information

A CIMIS weather station has been installed in the District and is maintained by District personnel. Data is available for daily ET and current weather information. The Fresno Bee publishes crop evapotranspiration data for most crops grown in the area.

c. Surface, ground, and drainage water quantity and quality data provided to water users

Historically, MID has had very good surface water quality with the water supply coming from Sierra Nevada snowmelt. The District currently has water quality monitoring programs for the APAP and Madera Ranch MOCP, but no available data yet. Other water information available to growers is on the District website: http://www.madera-id.org/index.php/information-for-growers

d. Agricultural water management educational programs and materials for farmers, staff, and the public

See Attachment I for samples of provided materials and notices

e. Other

N/A

4. Pricing structure - based at least in part on quantity delivered

Adopt a water pricing structure based on the measured quantity delivered

Each year MID's Board of Directors sets a crop water price based on a number of factors including the District's operational costs for that year and the quantity of water projected. The District charges its growers by the quantity of water delivered to their turnout. The charges are based on an acre foot measurement obtained daily by the ditch tender from the District meters and/or pump tests. The Board attempts to set a fair price for water realizing that the District is in a depleted groundwater basin and needs to replenish groundwater whenever possible. See Section 1.G. and Section 3.B.4 for additional pricing structure details.

5. Evaluate and improve efficiencies of district pumps

Describe the program to evaluate and improve the efficiencies of the contractor's pumps.

The District owns a total of seven lift pumps in five different locations. In two locations, there are two pumps in redundancy to better accommodate varying surface flows. However, only one pump is operated at a given time. Pumps are inspected and serviced yearly by the District's Meter Technician. When routine maintenance and repairs cannot be completed by District staff, MID will contract with a local pump company. Currently, the Airport and Cottonwood Creek Lateral lift pumps do not have meters or discharge data available. In the future, these locations will be metered and improved for operational efficiencies when funds become available.

I.D.	*Lift pumps*	*Surveyed last year*	*Surveyed current year*	*Projected next year*	*Latitude GPS Coordinate*	*Longitude GPS Coordinate*
P-1	32.2 Basin	yes	yes	yes	37.040422	-120.165689
P-2	Island Tract A	yes	yes	yes	37.011672	-119.995539
P-3	Island Tract B	no	no	no	37.011672	-119.995556
P-4	Airport A	yes	yes	yes	36.996353	-120.128344
P-5	Airport B	no	no	no	36.996344	-120.128347
P-6	Section 8 Lateral North	yes	yes	yes	36.894800	-120.165219
P-7	Cottonwood Creek Lateral	yes	yes	yes	36.869439	-120.128303

B. EXEMPTIBLE BMPS FOR AGRICULTURAL CONTRACTORS

(See Planner, Section 2, Addendum B for examples of exemptible conditions)

1. Facilitate alternative land use

Drainage Characteristic	*Acreage*	*Potential Alternate Uses*
High water table (<5 feet)	None	
Poor drainage	None	
Groundwater Selenium concentration > 50 ppb	None	
Poor productivity	None	

Describe how the contractor encourages customers to participate in these programs.

2. Facilitate use of available recycled urban wastewater

Sources of Recycled Urban Waste Water	*AF/Y Available*	*AF/Y Currently Used in District*
None		

3. Facilitate the financing of capital improvements for on-farm irrigation systems

Program	*Description*
None	

MID encourages growers to improve on-farm irrigation systems by providing industry resources on the District website: http://www.madera-id.org/index.php/information-for-growers

MID will continue to replace antiquated meters for on-farm turnouts. 178 open-flow Badger propeller meters are scheduled for replacement within the next 3-5 years. The future replacement meters will be paid for by MID or other grant funding if available.

4. Incentive pricing

Describe incentive rate structure and purpose.

Madera Irrigation District is a conjunctive use district. The District's contract with the Bureau of Reclamation for Friant Dam provides supplemental supply. As part of the conditions for the District to obtain the conservative yield from Hidden Dam, the USBR required the District to annex a minimum of 15,000 additional acres based on an annual average supply of 24,000 acre-feet of water. This demand supply ratio cannot meet the crop demand for this annexed land without groundwater pumping in all but the wettest of years.

The water pricing policies of the District have been established on an annual basis to recover the costs associated with obtaining these supplies as well as the maintenance and enhancement of groundwater resources within the boundaries of the District. The goal of the water pricing policy is to maximize the use of surface water. This is consistent with goals of the District's Groundwater Management Plan. The water delivery season and pricing procedures of the District are established on an annual basis by the Board of Directors. The Crop Water Policy in Attachment L establishes the water costs and conditions to receive water. The monthly billing form shows the water usage, price of water, payment terms, and delinquency conditions. See Attachment D, District Sample Bills.

The District's pricing schedules are consistent with the adopted conjunctive use management goals. The District uses an adjustable pricing procedure to maximize its groundwater resources and the desired message to water users. The District uses two methods to achieve this objective:

1. The comparison of District costs of both the fixed and variable nature
2. Wet year versus dry year variations in pricing.

These methods are described below:

1. The District uses a cost allocation of District operations on fixed charges to adjust surface water per acre-foot costs to compete with grower's groundwater pumping costs. The passage of Proposition 218 placed restrictions and limitations on the flexibility of year to year adjustments. The District enacted a $15.00 per acre standby fee to further adjust surface water prices to be in line with groundwater pumping costs. This pricing adjustment in concert with the wet year/dry price variation described below encourages growers to optimize both surface and groundwater resources.

2. The District takes into account the available quantities of the various water supplies and the costs associated with each water supply. Typically, the blended supply costs decrease as the water supply allocation increases. A decrease in surface water costs during wet years creates an incentive for growers to use surface water in lieu of groundwater, thereby reducing overdraft. The District's "subordinate" lands also receive a surface water supply during wet years which further enhances the groundwater conditions. Subordinate lands receive no allocation during dry conditions and pump groundwater for their entire supply. The District does attempt to purchase outside water supplies for Subordinates in dry years to combat the area's groundwater overdraft. This wet/dry year scenario pricing structure is documented by a water price of $50.00 per acre foot in 2011 (a wet year) as compared to a water price of $72.50 per acre-foot in 2012 (a dry year).

A portion of the City of Madera lies within the boundaries of Madera Irrigation District. These lands are assessed on a per square-foot basis and receive groundwater recharge benefits in addition to the conveyance of storm water through District facilities.

5. a) Line or pipe ditches and canals

Canal/Lateral (Reach)	*Type of Improvement*	*Number of Miles in Reach*	*Estimated Seepage (AF/Y)*	*Accomplished/ Planned Date*
Berenda Creek	Unlined[1]	5.2	unknown	none
Cottonwood Creek	Unlined[1]	10.1	unknown	none
Dry Creek	Unlined[1]	21.4	unknown	none
Fresno River	Unlined[1]	12.2	unknown	none
Lateral 24.2	Lined[2]	11.2	unknown	none
Lateral 32.2	Lined[2]	15.0	unknown	none
Lateral 6.2	Lined[2]	22.3	unknown	none
MC&I Main	Unlined	16.7	unknown	none

[1] Natural channel

[2] Lined with impervious clay soil

b) Construct/line regulatory reservoirs

None.

6. Increase flexibility in water ordering by, and delivery to, water users

See Attachment J, District Agricultural Water Order Form.

Currently the District requires a 24 hours shutoff notice, but regulatory reservoirs should be able to shorten this significantly. It is anticipated the 24 hour advance notice may be reduced to 12 hours or less. Regulating basins would allow for more convenient start and end times and better control by the ditch tender.

7. Construct and operate district spill and tail water recovery systems

Describe facilities that resulted in reduced spill and tail water.

Refer to Section 2, F.1 for District spill locations. The District has very minimal operational spill during the irrigation season. Spill is reduced by using regulating and recharges reservoirs such as Lake Madera, the Lateral 32.2 Basin, and other basins listed in Section 1, B.4. Spill is minimized in dry years by a 7 day rotation period for water deliveries to allow for downstream users to pick up the water if early shut offs occur. Currently, all spill out of the District is contracted, made available for customer use or used for groundwater recharge.

The creeks, which are used by the District as part of its service and distribution system, are privately owned and may receive minimal tail water drainage.

8. *Plan to measure outflow.*

Total # of outflow (surface) locations/points 5
Total # of outflow (subsurface) locations/points 0
Total # of measured outflow points 5
Percentage of total outflow (volume) measured during report year 100%

Identify locations, prioritize, determine best measurement method/cost, submit funding proposal

Priority	*Outflow Point*	*Location*	*Estimated cost (in $1,000s)*				
			Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
1	O-3	Avenue 9 & Road 22	none	none	none	none	none
2	O-5	Avenue 6 & Road 29 1/2	none	none	none	none	none
3	O-1	Avenue 17 & Road 15	none	none	none	none	none
4	O-2	Avenue 15 & Road 16	none	none	none	none	none
5	O-4	Avenue 5 & Road 23	none	none	none	none	none

District growers must supplement the District water supply with groundwater during certain times of the year. Pre-irrigation needs are met primarily with groundwater, summer irrigations with surface water, and fall irrigations with a combination of both. The District works to time its irrigation season when there are peak crop demands to reduce the strain on Madera's groundwater aquifer.

9. Optimize conjunctive use of surface and groundwater

Describe the potential for increasing conjunctive use of surface and groundwater.

MID is a conjunctive use District. Water is served on an "on demand" basis and is not allocated to growers or acres. MID growers use a combination of surface water, when available, and groundwater from private wells. MID encourages surface water use, when it is available, by pricing its water competitively.

A majority of MID water is delivered though open canals which allows for recharge throughout the District. MID also owns and controls a number of basins that are used for recharge and regulation. This recharge and regulation greatly counter the groundwater overdraft in Madera County.

MID is exploring ideas for additional storage capacity and flexibility in existing basins. MID is also working with other agencies and the Regional Water Management Group (RWMG) to develop joint projects to combat groundwater decline and increase surface water reliability. The District's groundwater management is in Attachment F.

10. Automate distribution and/or drainage system structures

Identify locations where automation would increase delivery flexibility and reduce spill and losses. Describe program to achieve these benefits and estimate the annual water savings.

The Madera Canal, which is MID's main service canal from Friant Dam, has automation and SCADA. The Madera Canal is managed by the Madera-Chowchilla Water and Power Authority (MCWPA), which MID is a partner of. MID installed its first SCADA controlled automated gate in 2012 at the head of its MC&I system at Franchi Dam. MID has also installed electronic sensors, without SCADA, throughout the District to measure flow and spills.

Under the 2011 USBR Field Services grant, three new Rubicon Flume Gates with supervisory control and data acquisition (SCADA) capabilities will be installed on the Big Main at the Hospital Weir, on the Main I at the head, and on the Main II at the Bishel Weir.

In addition, under the 2013 USBR WaterSMART grant, 10 existing flow monitoring locations will be retrofitted with SCADA capabilities. Additionally, the District will purchase and install 23 new flume meters, slip meters, or flume gates with SCADA capabilities. The grant funding will provide the necessary SCADA equipment at the MID office, computer software, and MID staff training. The locations are shown in the table on the following page.

Priority	Location	Status	Device
1	Main II @ Cottonwood Creek	Existing	Mace Meter
2	Main II @ Hwy 145	Existing	Mace Meter
3	Lateral 24.2	Existing	Mace Meter
4	Lateral 6.2-16.9	Existing	Mace Meter
5	Lateral 6.2-18.4	Existing	Mace Meter
6	Lateral 6.2 Extension	Existing	Mace Meter
7	Franchi Dam	Existing	Flume Gate
8	Big Main @ Hospital Weir	Proposed	Flume Gate
9	Main I Head	Proposed	Flume Gate
10	Main II @ Bishel Weir	Proposed	Flume Gate
11	Lateral 32.2 Basin	Future	Flume Gate
12	Roberts Head	Future	Flume Meter
13	Hughes Head	Future	Flume Meter
14	Butin Head	Future	Flume Meter
15	Hospital Head	Future	Flume Meter
16	Lateral 24.2 Head	Future	Flume Gate
17	Lateral 24.2-8.9 Head	Future	Flume Meter
18	Lateral 24.2-9.0 Head	Future	Flume Meter
19	Lateral 24.2-13.2 Head	Future	Flume Meter
20	Lateral 24.2-17.0 Head	Future	Flume Meter
21	Lateral 24.2-17.0-2.3 Head	Future	Flume Meter
22	Lateral 24.2-19.6 Head	Future	Flume Meter
23	Lateral 32.2-9.9 Head	Future	Flume Meter
24	Lateral 32.2-10.2 Head	Future	Flume Meter
25	Lateral 32.2-13.2 Head	Future	Flume Meter
26	Lateral 32.2-9.9W-0.1 Head	Future	Flume Meter
27	Lateral 32.2-9.9W-1.0 Head	Future	Flume Meter
28	Lateral 32.2-9.9W-1.5 Head	Future	Flume Meter
29	Lateral 32.2-9.9W-2.0 Head	Future	Flume Meter
30	Colony Extension Head	Future	Flume Meter
31	Lateral 6.2-14.9 Head	Future	Slip Meter
32	Lateral 6.2-15.9-2.0 Head	Future	Slip Meter
33	Lateral 24.2 Waste Way Spill	Future	Flume Meter

The calculated water savings range, included in the 2013 USBR WaterSMART grant application, was estimated at 10,590 to 21,645 acre feet per year.

11. Facilitate or promote water customer pump testing and evaluation

See Attachment H, Notices of District Education Programs and Services Available to Customers.

Growers are aware that PG&E pump testing is not available; most of the testing now is being done by the private pump companies. The District provides pump testing for discharge flow rate, but not for pump efficiency. Growers are encouraged by the District to have pump tests done on a yearly basis. The District requires all new pump installations from District canals to have inline or magnetic flow meters. Friant Water Users Authority provides a list, made available to District growers, of organizations that perform irrigation pump efficiency testing. Additional resources are available on the District website: http://www.madera-id.org/index.php/information-for-growers

12. *Mapping*

GIS maps	*Estimated cost (in $1,000s)*[1]				
	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Layer 1 – Distribution system	22	10	5	3	3
Layer 2 – Drainage system	0	0	0	0	0
Layer 3 – Groundwater information	3	3	3	1	1
Layer 4 – Soils map	3	0	0	1	0
Layer 5 – Natural & cultural resources	none	none	none	none	none
Layer 6 – Problem areas	0	0	0	0	0
Total	28	13	8	5	4

[1] Costs are approximate and subject to change.

C. PROVIDE A 3-YEAR BUDGET FOR IMPLEMENTING BMPS

1. Amount actually spent during current year.

Year 2012 or Year 1 BMP #		BMP Name	Actual Expenditures[1] (not including staff time)	Staff Hours
A	1	Measurement	$115,000	N/A
	2	Conservation staff[2]	$100,000	N/A
	3	On-farm evaluation / water delivery info	$500	N/A
		Irrigation scheduling	$3,000	N/A
		Water quality	$37,500	N/A
		Agricultural education program	$700	N/A
	4	Quantity pricing	$20,000	N/A
	5	Contractor's pumps	$2,500	N/A
B	1	Alternative land use	$0	N/A
	2	Urban recycled water use	$0	N/A
	3	Financing of on-farm improvements	$0	N/A
	4	Incentive pricing	$5,000	N/A
	5	Line or pipe canals/install reservoirs	$30,000	N/A
	6	Increase delivery flexibility	$0	N/A
	7	District spill/tail water recovery systems	$0	N/A
	8	Measure outflow	$10,000	N/A
	9	Optimize conjunctive use	$10,000	N/A
	10	Automate canal structures	$110,000	N/A
	11	Customer pump testing	$1,500	N/A
	12	Mapping	$28,300	N/A
				N/A
		Total	$474,000	N/A

[1] Costs are approximate
[2] Paid by MID

2. Projected budget summary for the next year.

Year 2013 or Year 2			*Projected Expenditures*[1]	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	$115,000	N/A
	2	*Conservation staff*[2]	$100,000	N/A
	3	*On-farm evaluation / water delivery info*	$500	N/A
		Irrigation scheduling	$3,000	N/A
		Water quality	$47,500	N/A
		Agricultural education program	$700	N/A
	4	*Quantity pricing*	$20,000	N/A
	5	*Contractor's pumps*	$2,500	N/A
B	*1*	*Alternative land use*	$0	N/A
	2	*Urban recycled water use*	$0	N/A
	3	*Financing of on-farm improvements*	$0	N/A
	4	*Incentive pricing*	$5,000	N/A
	5	*Line or pipe canals/install reservoirs*	$40,000	N/A
	6	*Increase delivery flexibility*	$0	N/A
	7	*District spill/tail water recovery systems*	$0	N/A
	8	*Measure outflow*	$10,000	N/A
	9	*Optimize conjunctive use*	$30,000	N/A
	10	*Automate canal structures*	$180,000	N/A
	11	*Customer pump testing*	$1,500	N/A
	12	*Mapping*	$13,000	N/A
				N/A
		Total	$568,700	N/A

[1] Costs are approximate and subject to change.
[2] Paid by MID

3. Projected budget summary for 3rd year.

Year 2014 or Year 3			*Projected Expenditures*[1]	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	$115,000	N/A
	2	*Conservation staff*[2]	$100,000	N/A
	3	*On-farm evaluation / water delivery info*	$500	N/A
		Irrigation scheduling	$3,000	N/A
		Water quality	$47,500	N/A
		Agricultural education program	$700	N/A
	4	*Quantity pricing*	$20,000	N/A
	5	*Contractor's pumps*	$2,500	N/A
B	*1*	*Alternative land use*	$0	N/A
	2	*Urban recycled water use*	$0	N/A
	3	*Financing of on-farm improvements*	$0	N/A
	4	*Incentive pricing*	$5,000	N/A
	5	*Line or pipe canals/install reservoirs*	$100,000	N/A
	6	*Increase delivery flexibility*	$0	N/A
	7	*District spill/tail water recovery systems*	$0	N/A
	8	*Measure outflow*	$10,000	N/A
	9	*Optimize conjunctive use*	$30,000	N/A
	10	*Automate canal structures*	$180,000	N/A
	11	*Customer pump testing*	$1,500	N/A
	12	*Mapping*	$8,000	N/A
				N/A
		Total	$623,700	N/A

[1] Costs are approximate and subject to change.
[2] Paid by MID

Section 4 Best Management Practices for Urban Contractors

A. URBAN BMPS

The District does not serve Urban customers.

Section 5 District Water Inventory Tables

Table 1 – Water Surface Supply

Table 2 – Ground Water Supply

Table 3 – Total Water Supply

Table 4 – Agricultural Distribution System

Table 5 – Crop Water Needs

Table 6 – 2012 District Water Inventory

Table 7 – Influence on Groundwater and Saline Sink

Table 8 – Annual Water Quantities Delivered Under Each Right or Contract

Table 1

Surface Water Supply

2012 Month	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Hidden Dam, Big Creek, other prior (acre-feet)	Soquel (Pre-1914) (acre-feet)	Transfers into District (acre-feet)	Wheeling (acre-feet)	Upslope Drain (acre-feet)	Total (acre-feet)
Method	C1	-	-	-	C1	C2	C1	M2	-	
January	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0
May	5,885	0	0	0	4,106	0	0	111	0	10,102
June	21,513	0	0	0	10,078	0	0	282	0	31,873
July	18,530	0	0	0	10,485	2,000	3,755	380	0	35,150
August	16,420	0	0	0	7,617	2,000	1,245	438	0	27,720
September	2,707	0	0	0	551	2,266	0	0	0	5,524
October	0	0	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0
TOTAL	65,055	0	0	0	32,837	6,266	5,000	1,211	0	110,369

Method Definitions:

M1	Measured summation from calibrated measuring devices, accurate to within +/- 6%.
M2	Measured summation from calibrated measuring devices.
M3	Measured summation from measuring devices.
C1	Calculated (more than summation) using information from calibrated devices (e.g. the difference between measurements upstream and downstream of diversion).
C2	Calculated using information from measuring devices.
C3	Calculated using estimates from pump run-times and pump efficiency.
E1	Estimated using measured information from similar conditions.
E2	Estimated using historical information.
E3	Estimated using observation.
O1	Other (attach a note with descriptions of other methods used).

Table 2

Ground Water Supply

2012 Month	District Groundwater (acre-feet)	Private Agric Groundwater (acre-feet)
Method[1]	-	-
January	0	N/A
February	0	N/A
March	0	N/A
April	0	N/A
May	0	N/A
June	0	N/A
July	0	N/A
August	0	N/A
September	0	N/A
October	0	N/A
November	0	N/A
December	0	N/A
TOTAL	0	0

[1] Method Definitions are shown on Table 1

[2] Private Agriculture Groundwater is not collected from individual growers.

Table 3

Total Water Supply

2012 Month	Surface Water Total (acre-feet)	District Groundwater (acre-feet)	Recycled M&I Wastewater[1] (acre-feet)	Total District Water (acre-feet)
Method	C1	-	-	
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	10,102	0	0	10,102
June	31,873	0	0	31,873
July	35,150	0	0	35,150
August	27,720	0	0	27,720
September	5,524	0	0	5,524
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
TOTAL	110,369	0	0	110,369

[1] Method Definitions are shown on Table 1

[2] Recycled M&I Wastewater is treated urban wastewater that is used for agriculture

2012 Precipitation Worksheet

	inches precip	ft precip	acres	AF/Year
Jan	0.10	0.01	580.23	4.84
Feb	0.48	0.04	580.23	23.21
Mar	0.44	0.04	580.23	21.27
Apr	1.68	0.14	580.23	81.23
May	0.00	0.00	580.23	0.00
Jun	0.06	0.01	580.23	2.90
Jul	0.00	0.00	580.23	0.00
Aug	0.00	0.00	580.23	0.00
Sept	0.00	0.00	580.23	0.00
Oct	0.13	0.01	580.23	6.29
Nov	1.96	0.16	580.23	94.77
Dec	2.67	0.22	580.23	129.10
TOTAL	**7.52**	**0.63**	**580.23**	**363.61**

2012 Evaporation Worksheet

	inches evap	ft evap	acres	AF/YEAR
Jan	1.35	0.11	580.23	65.28
Feb	1.31	0.11	580.23	63.34
Mar	4.82	0.40	580.23	233.06
Apr	5.21	0.43	580.23	251.91
May	7.66	0.64	580.23	370.38
Jun	10.92	0.91	580.23	528.00
Jul	11.30	0.94	580.23	546.38
Aug	9.31	0.78	580.23	450.16
Sept	6.12	0.51	580.23	295.91
Oct	4.94	0.41	580.23	238.86
Nov	2.64	0.22	580.23	127.65
Dec	0.97	0.08	580.23	46.90
TOTAL	**66.55**	**5.55**	**580.23**	**3,217.83**

Table 4

Agricultural Distribution System

2012

Canal, Pipeline, Lateral, Reservoir	**Length** (feet)	**Width** (feet)	**Surface Area** (square feet)	**Precipitation** (acre-feet)	**Evaporation** (acre-feet)	**Spillage**[1] (acre-feet)	**Seepage**[2] (acre-feet)	**Total** (acre-feet)
Berenda Creek	27,280	25	682,000	9.8	86.8	225	982	(1,284)
Cottonwood Creek	53,320	30	1,599,600	23.0	203.7	604	2,303	(3,088)
Dry Creek	112,992	40	4,519,680	65.0	575.4	0	6,508	(7,019)
Fresno River	64,416	100	6,441,600	92.7	820.1	36	9,276	(10,039)
Lateral 24.2	58,898	32	1,884,736	27.1	240.0	0	2,714	(2,927)
Lateral 32.2	79,148	30	2,374,440	34.2	302.3	0	3,419	(3,687)
Lateral 6.2	117,931	36	4,245,516	61.1	540.5	506	6,114	(7,099)
MC&I Main	88,176	40	3,527,040	50.7	449.0	0	5,079	(5,477)
TOTAL	602,161	333	25,274,612	363.6	3,217.8	1,371	36,395	(40,621)

[1] Spillage includes urban and rural storm runoff.

[2] Seepage is estimated at approximately 33% of flow.

Table 5

Crop Water Needs

2012 Crop Name	Area (crop acres)	Crop ET (AF/Ac)	Leaching Requirement (AF/Ac)	Cultural Practices (AF/Ac)	Effective Precipitation (AF/Ac)	Appl. Crop Water Use (acre-feet)
Almonds	30,497	3.9	0.0	0.0	0.74	96,371
Cotton	137	2.9	0.0	0.0	0.70	301
Field Crops	119	2.2	0.0	0.0	0.68	181
Fruit Trees	4,969	3.7	0.0	0.0	0.73	14,758
Grains	4,049	1.1	0.0	0.0	0.64	1,863
Grapes	43,121	2.5	0.0	0.0	0.73	76,324
Grasses	372	4.5	0.0	0.0	0.68	0
Pistachios	7,704	3.4	0.0	0.0	0.73	20,570
Other (<5%)	8,235	3.4	0.0	0.0	0.69	22,317
Crop Acres	99,203					232,684

Total Irrig. Acres 99,203 (If this number is larger than your known total, it may be due to double cropping)

Table 6

2012 District Water Inventory

Water Supply		Table 3		110,369
Riparian ET		(Distribution and Drain)	minus	0
Groundwater recharge		(intentional - ponds, injection)	minus	0
Seepage		Table 4	minus	36,395
Evaporation - Precipitation		Table 4	minus	2,854
Spillage		Table 4	minus	1,371
Transfers/Wheeling out of District			minus	1,211
Water Available for sale to customers				68,537
Actual Agricultural Water Sales	2012	From District Sales Records		77,641
Private Groundwater[1]		Table 2	plus	0
Crop Water Needs		Table 5	minus	232,684
Drainwater outflow		(tail and tile, not recycled)	minus	0
Percolation from Agricultural Land		(calculated)		(155,043)
Unaccounted for Water		(calculated)		(9,104)

[1] Private Agriculture Groundwater is not collected from individual growers.

Table 7

Influence on Groundwater and Saline Sink

2012

Agric Land Deep Perc + Seepage + Recharge - Groundwater Pumping = District Influence on	36,395
Estimated actual change in ground water storage, including natural recharge	0
Irrigated Acres (from Table 5)	99,203
Irrigated acres over a perched water table	0
Irrigated acres draining to a saline sink	0
Portion of percolation from agri seeping to a perched water table	0
Portion of percolation from agri seeping to a saline sink	0
Portion of On-Farm Drain water flowing to a perched water table/saline sink	0
Portion of Dist. Sys. seep/leaks/spills to perched water table/saline sink	0
Total (AF) flowing to a perched water table and saline sink	0

Table 8

Annual Water Quantities Delivered Under Each Right or Contract

Year	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Hidden Dam, Big Creek, other prior (acre-feet)	Soquel (Pre-1914) (acre-feet)	Transfers into District (acre-feet)	Wheeling (acre-feet)	Upslope Drain (acre-feet)	Total (acre-feet)
2003	129,704	0	0	0	30,120	9,461	2,300	0	0	171,585
2004	99,880	0	0	0	22,066	7,963	10,531	0	0	140,440
2005	113,191	0	0	0	44,024	15,880	0	0	0	173,095
2006	158,432	0	0	0	40,421	15,865	0	0	0	214,718
2007	84,011	0	0	0	19,668	6,337	8,755	0	0	118,771
2008	94,569	0	0	0	35,255	5,937	5,525	0	0	141,286
2009	118,072	0	0	0	13,968	8,119	2,941	149	0	143,249
2010	157,201	0	0	0	72,939	12,588	7,646	268	0	250,642
2011	125,002	0	0	0	182,771	18,674	0	230	0	326,677
2012	65,055	0	0	0	32,837	6,266	5,000	1,211	0	110,369
Total	1,145,117	0	0	0	494,069	107,090	42,698	1,858	0	1,790,832
Average	114,512	0	0	0	49,407	10,709	4,270	186	0	179,083

Attachment A: District Maps

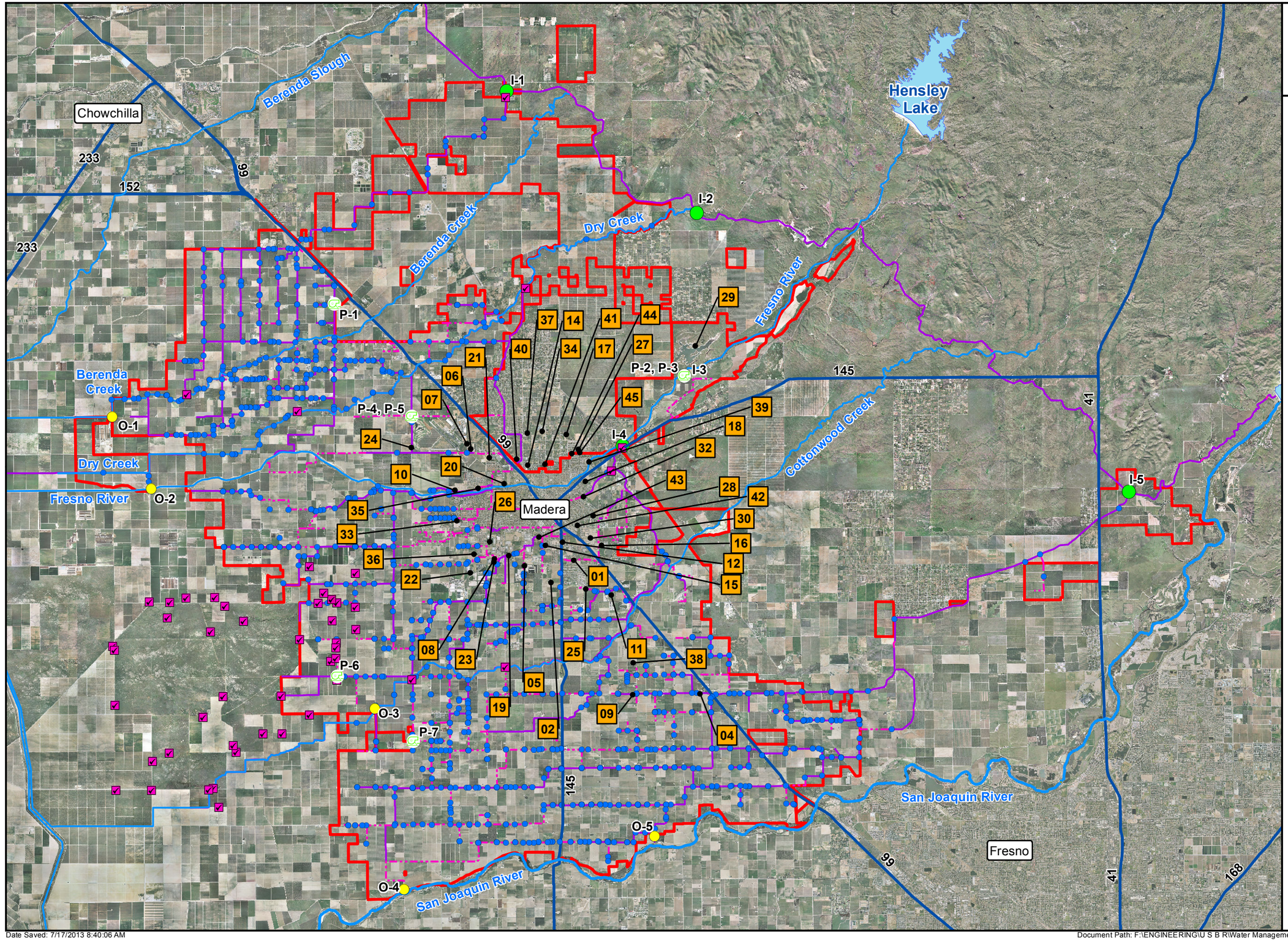
A-1 MID Facilities Map

A-2 MID Distribution Map

A-3 Soils Map

A-4 Public Water Districts Map

Madera Irrigation District Facilities (Attachment A)



Legend

- Madera I.D.
- Canal
- Pipe
- Major Highways & Roads
- Waterways
- Basin
- Incoming Flow
- Lift Pump
- Outflow
- Turnout
- Water Quality Sample Site

Date:
7/17/2013

Author:
Ramon E Mendez

0 1.25 2.5 5
Miles

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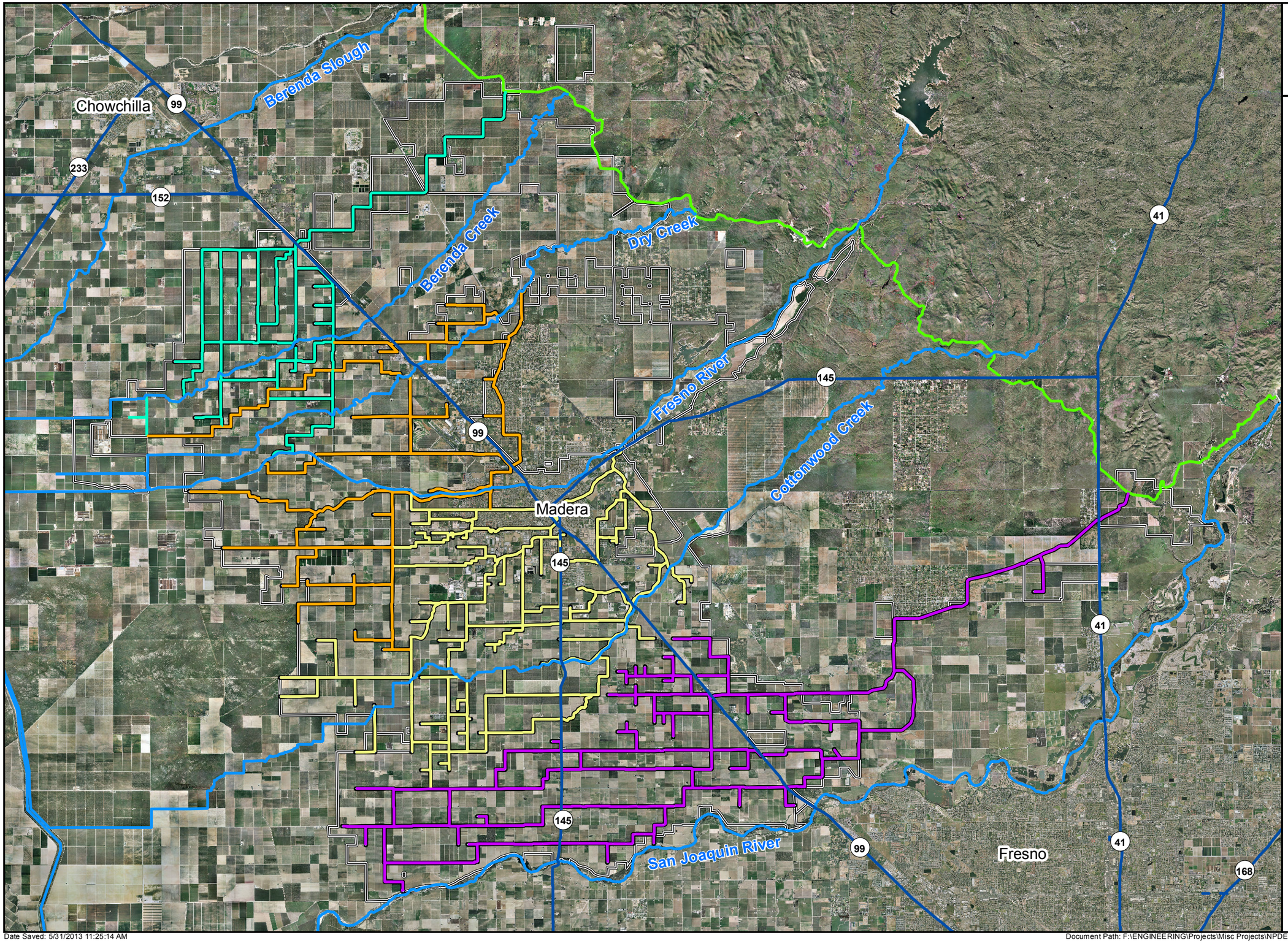
Madera Irrigation District Distribution System



Legend

- Madera ID Boundary
- Waterways
- Big Main System
- 6.2 System
- 24.2 System
- 32.2 System
- Madera Canal
- Major Highways & Roads

Date:
7/17/2013

Author:
Ramon E Mendez

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Miles

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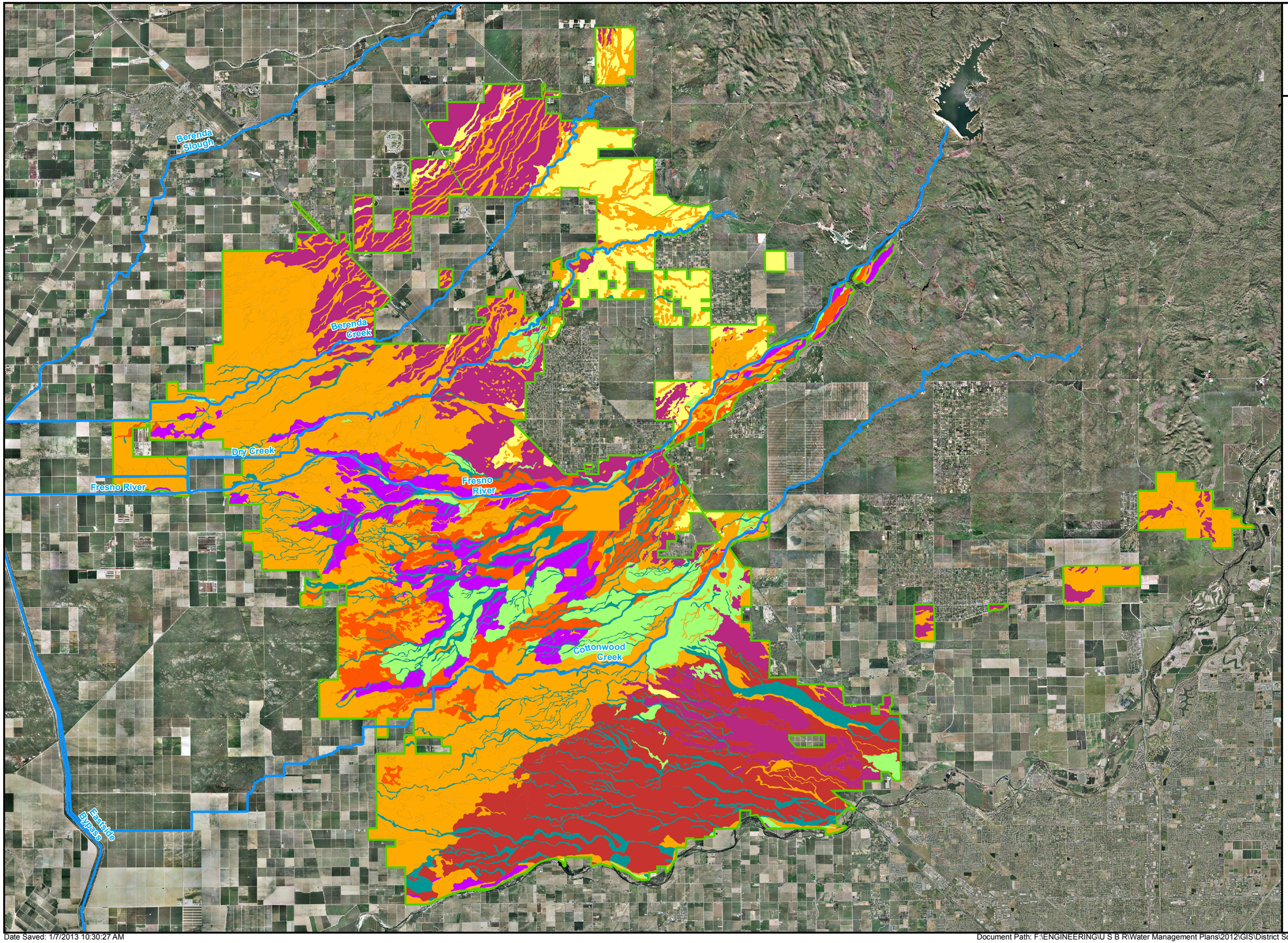
Madera I.D.
Soil Classification
(NRCS)



Legend

- Rivers and Creeks
- Madera ID
- Cometa sandy loams
- Grangeville fine sandy loam
- Hanford (ripperdan) fine sandy loam
- Hanford fine sandy loam
- Pachappa fine sandy loam
- San Joaquin sandy loams
- Tujunga loamy sand
- Other Values <5%

MADERA IRRIGATION DISTRICT 1920

Date:
6/5/2013

Author:
Ramon E Mendez

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Madera County
Public Water Districts

Legend

- Waterways
- Canal
- Pipe
- Aliso W.D.
- Chowchilla W.D.
- Clayton W.D.
- Gravelly Ford W.D.
- Madera I.D.
- New Stone W.D.
- Root Creek W.D.

Date:
7/17/2013

Author:
Ramon E Mendez

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Attachment B: District Rules and Regulations

MADERA IRRIGATION DISTRICT

RULES AND REGULATIONS
FOR
DISTRIBUTION OF WATER
AND
MAINTENANCE OF DITCHES AND PIPELINES

ADOPTED March 1, 2011

READ RULES AND REGULATIONS CAREFULLY

WATER ORDERS

MADERA IRRIGATION DISTRICT - OPERATIONS OFFICE
12152 Road 28 ¼
Madera, CA 93637
Telephone – (559) 673-9241 or (559) 268-2483

OFFICE HOURS:

Monday through Friday:	7:00 a.m. to 5:00 p.m.
Saturday:	Office Closed
Sunday:	Office Closed
District Holidays:	Office Closed
After Hours:	Call your Ditchtender **Direct** **DO NOT** Leave Water Change orders on the Answering Machine **OR** Cell Phone Voice Mail

Ditchtender: _____

Ditchtender Phone No.: (Cell) _____ (Home) _____

Relief Ditchtender: _____

Relief Ditchtender Phone No.: (Cell) _____ (Home) _____

IN CASE OF <u>CANAL BREAK</u> Call (559) 474-7662

SECTION 1: CONTRACTS WITH THE UNITED STATES

1.01 District water supplies include water received from the federal Central Valley Project (CVP) pursuant to contracts between the United States and the District. All water distributed by the District pursuant to such contracts is subject to certain restrictions, terms and conditions as required by the provisions of said contracts and the Reclamation Laws of the United States.

1.02 Copies of said contracts are on file and available for review at the District office and the provisions therein pertaining to use and distribution of, and payment for, CVP water are binding upon all water users and therefore incorporated by this reference as a part of these rules and regulations.

SECTION 2: OPERATIONS AND CONTROL OF DISTRICT WORKS

2.01 All diversion works, canals, ditches, head gates, pipelines and other structures will be operated and maintained by the District. The control and operation of such facilities will be conducted only by the District or its authorized agents who shall have control of these facilities. The location and number of gates for the distribution of water from the District's distribution system and the manner of delivery there from shall be determined by the Board of Directors.

SECTION 3: ACCESS TO LANDS

3.01 The authorized agents or employees of the District shall have access at all times to all lands receiving water from the District system for the purpose of maintaining or examining the ditches and the flow of water therein, inspecting for compliance with applicable state and federal regulations and laws and to determine the acreage and types of crops on irrigable lands within the District.

3.02 If the District holds a right-of-way or easement across private land for the operation of a canal or other facility, the law provides that the District has, and the District shall exercise, certain secondary rights and easements, such as the right-of-way or easement to make repairs, conduct maintenance and do such other things as are necessary for the full exercise of the easement rights.

SECTION 4: BASIS FOR ALLOCATION OF WATER

In the event that extraordinary water supply circumstance warrant, the Board may establish terms and conditions for the allocation and distribution of water supplies to prevent undue hardship or to preserve the life of permanent crops.

SECTION 5: APPLICATIONS FOR WATER SERVICE

5.01 The irrigation delivery season shall be established each year by the Board of Directors as part of the annual Crop Water Distribution Policy. Also, the period for making application for crop water will be established annually by the Board. Applications shall be filed in the District office on forms provided by the District.

5.02 Applications for water service shall be completed for each parcel prior to any delivery of water to that parcel. Reporting of any land ownership changes must be completed **IN WRITING no later than 30 days of escrow closing** in order for the parcel to be added and/or deleted on the crop water application.

5.03 All crop water applications shall state the property description (Madera County assessor's parcel number) and acreage to be served. Applications must be signed by the owners of record as shown on the District assessment roll. Tenants or lessees must also sign the application. Facsimile signatures are acceptable. Farm managers or authorized agents may execute the Crop Water Application in lieu of the owner of record provided the District has current written authorization from the land owner on file.

5.04 The following prerequisites shall be completed each year prior to finalizing the Crop Water Applications:

(a) **Landowners and Lessees are responsible** for completing all Crop Water Applications each year associated with their individual ownership or leases.

(b) All delinquent crop water charges, assessments, certificates of sale, standby charges or any other charges on any and all parcels owned and/or leased by the grower submitting an Application must be paid in full prior to approval of the Application by the District.

(c) Reclamation Reform Act (RRA) forms must be completed annually and on file with the District office. Reporting of any land ownership changes must be IN WRITING

(d) Applicant shall designate one or more crop water accounts. Those accounts will not be combined or segregated during or after the crop water season.

(e) The Crop Water Application must be signed by the landowner or authorized agent of the landowner. A facsimile signature is allowed.

(f) Landowners have the sole responsibility for the financial obligations on their property. If the land is leased out and the lessee does not pay the water charges in full, the amount owing will be added to and become part of the annual assessment levied on the land (*California State Water Code Section 25806*). Letters of nonfinancial responsibility from landowners ***will not*** be accepted by the District.

5.05 **FLAT RATE USERS:** Water service to any parcel of land consisting of less than six (6.0) acres will be based on a flat rate charge, except as otherwise provided below. The Board of Directors will establish the flat rate charge each year prior to the application period. Flat Rate users may request installation of a meter box on a flat rate parcel and become a regular water user provided the user pays the cost of the meter and delivery structure installation. Parcels less than six (6.0) acres where meters have already been installed will remain regular water users permanently. Parcels less than six (6.0) acres adjoining a regular use parcel and jointly owned will be billed at the regular water rate. Application for flat rate parcels must be made in accordance with the rules herein set forth. Flat rate users will receive water upon request once a water order has been placed in conformance with the Crop Water Distribution Policy.

5.06 No application will be accepted for lands not in the Madera Irrigation District, nor for lands which are ineligible to receive water under the District's contracts with the United States.

SECTION 6: WATER ORDERING PROCEDURES

6.01 No water will be delivered to any parcel if there are delinquent assessments, standby fees, certificates of sale, or any other unpaid charges attributable to such parcel for which application is made.

6.02 All orders shall be placed through the District's Operations office, (559) 673-9241 or the appropriate Ditchtender. Orders for delivery to parcels for which delinquent amounts are due or applications for water service have not been filed will not be honored.

6.03 The District's Operations Department shall be notified not less than three (3) days in advance of the time requested for a water order start or to make a flow change. Orders for termination of delivery will be accepted no later than 2:00 p.m. the day preceding requested shut-off. In the event water delivery to a water user is terminated without a request or less than 24 hours after shutoff is requested, billing for water use will be calculated as if delivery had continued for the full 24 hour period unless such water can be delivered to another water user who has ordered water.

6.04 If water is available, it may be delivered earlier than the three (3) day notice period by mutual agreement between the water user and District providing delivery can be made without waste of water, without increasing spill and without interference to current users or users who have previously ordered water.

6.05 Water users may request water starts, stops and changes through the Office or directly with the Ditchtender responsible for the delivery location for which an order is requested. Normal office hours are Monday through Friday from 7:00

a.m. to 5:00 p.m., except holidays, during water season. Water orders should not be left on the District's answering machine or on the Ditchtender's cell phone voice mail. **In case of an emergency after office hours or during weekends and holidays, contact the Ditchtender or call (559) 474-7662 and follow the emergency procedures.**

6.06 Water must be used continuously until irrigation is completed. Established delivery flow rates must be maintained during the irrigation period unless changes are authorized by the Ditchtender.

6.07 Power outages and adverse weather conditions that terminate or disrupt deliveries will not relieve a water user from being charged for up to 24 hours of water on order in the system.

6.08 A minimum delivery flow rate of one cfs (450 gpm) or greater depending on meter size may be required by the District at any delivery point when necessary to ensure accurate measurement.

6.09 All deliveries through head gate structures shall be controlled by the Ditchtender who may lock these gates open or closed. The Ditchtender is to be notified in advance of any changes to be made in accordance with water ordering procedures in Section 5.03.

6.10 No water changes or terminations will be made after 2:00 p.m. unless previously agreed to by the Ditchtender. The District reserves the right to refuse service if any unreasonably large or small quantity of water is ordered.

6.11 If the ditch or pipeline is in such condition that a usable amount of water cannot be delivered, delivery will be denied until such condition is remedied. *Water Code Section 22257* provides in part: "A District may refuse to deliver water through a ditch or pipeline which is not clean or not in suitable condition to prevent waste or unreasonable use of water and may determine through which of two or more available ditches it will deliver water".

6.12 When canals are at capacity or flows are restricted due to limited water supply, any water user on this system who has been taking water for seven consecutive days or more may be directed, upon 24 hours notice, to terminate service to provide water for the other growers. Such a user may immediately place a new start order and be placed on a priority list established by the District.

SECTION 7: WATER, STANDBY CHARGES, PAYMENTS AND LATE CHARGES

7.01 Payments for Crop Water must be received in the office by 3:00 p.m. on the last business day of the month. Postmarks are not acceptable as evidence of timely payment.

7.02 Payments for water shall be payable to Madera Irrigation District office, 12152 Road 28 ¼, Madera, Ca 93637.

7.03 Payments for water shall be paid pursuant to the Crop Water Distribution Policy as approved annually by the Board of Directors.

7.04 Crop water charges are billed on a monthly basis by account number to the grower who originally applied. Accounts will **NOT** be combined or segregated during or after the crop water season. Landowners are financially responsible if their tenants or lessees do not pay their water bills. Payment of the account for parcels which are split or have more than one lessee will be the responsibility of the landowner.

7.05 Multiple parcels using a common turnout and meter that run concurrently will have water use charged on a prorated basis per acre. The landowner(s) or subordinate lands on the same parcel or turnout will be charged for water use on a prorated basis.

7.06 FLAT RATE PAYMENTS: One-half of the flat rate charge is payable at the time of application. The balance will be billed on the last business day of June and will become delinquent by the date set forth in the Crop Water Distribution Policy. Those flat rate users that apply during the second half of the season (and not the first half) must pay the whole flat rate amount at the time of application.

7.07 Standby Charges are billed on an annual basis and are due upon receipt of the billing. Invoices for standby charges are mailed to the property owner of record on the parcel at the time the billing is run. Payment of the standby charge may be made by either the owner or the lessee (if applicable), but ultimate responsibility for payment of the charge rests with the landowner.

7.08 LIABILITY FOR PAYMENT OF CHARGES: Charges for any mandatory allocation not used, for water used above the mandatory allocation, **AND** for water used when there is **NO mandatory allocation** and/or including any unpaid standby charges shall be a lien encumbering the parcel to which it was applied and shall become a part of the first installment of the succeeding year's assessments in addition to any other remedy provided by Water Code Section 25806 or other applicable law. Unpaid water used on parcels with a common turnout will be prorated (based on acreage) at the end of the water season to all parcels that used water on that turnout and will appear as part of the first installment of the owner's succeeding year's assessment statement.

7.09 All claims for overcharges or errors must be made in writing and filed with the District within 30 calendar days of the end of the crop water season. The dispute will be considered by District Staff, who shall provide written notice to the water user or landowner of the District's determination. The filing of a dispute does not

abate, delay or nullify the payment requirement or the District's right to discontinue water service.

7.10 Failure to pay any water charges will be subject to an interest rate of 2% per month or fraction of month thereof for late charges.

SECTION 8: WASTE OF WATER

8.01 Users wasting water, either willfully, carelessly or on account of defective or inadequate on-farm systems or structures, or because of inadequate preparation of the land for irrigation, may be refused further services immediately upon notice given by the District's authorized agent and continuing until the condition or practice is remedied. Early shut-offs by the District to prevent waste and/or unreasonable use by the grower will result in additional water charges.

8.02 Waste, pollution or other improper use of water shall be reported by the District to the appropriate authorities.

SECTION 9: IRRIGATION OF EXCESSIVELY HIGH GROUND

9.01 The District shall not be required to raise water to an excessive height in canals or ditches to provide service to lands or ditches of high elevations.

9.02 The District shall determine whether delivery to high elevation lands or ditches in particular conditions could jeopardize District ditches or interfere with service to other water users below or above said diversions or ditches. Users adding wood or other materials to District facilities to raise water levels will be held liable for issues these obstructions create including but not limited to ditch breaks.

SECTION 10: PUMPING FROM CANALS AND STREAMS

10.01 All water users pumping water from the canals or streams shall be governed in all respects by the rules and regulations applicable to water users under gravity service.

10.02 The District will not be held responsible for any debris which may accumulate in stream or canal flow which may tend to decrease the full operative capacity of or cause damage to pumps, filter systems, irrigation systems or pipelines.

10.03 Pumps from canals or streams should have automatic shutoff to protect the pump if there are low flows in the canal or stream. The District is not liable for damage to pumps due to low flows, trash, or other foreign objects in the canal or

stream. Pumps from canals must also have automatic restart controls to ensure the pumps restart following any power outage.

SECTION 11: OBSTRUCTION OF CANALS, USE OF CANALS AND RIGHTS-OF-WAY, AND TAMPERING WITH AND DAMAGE TO DISTRICT FACILITIES

11.01 No fences shall be built, trees planted or structures placed on any right-of-way or other property of the District without a District encroachment license.

11.02 Trash, rubbish, debris, fences and crops, including vines and trees, which actually or potentially interfere with the District's ability to operate and maintain the distribution system, shall be deemed to be an obstruction, and upon notification from the District, the water user shall immediately remove said obstruction(s). If the obstruction is not removed within a reasonable time, as determined by the District, the District will remove the obstruction and bill the user for any costs incurred by the District.

11.03 The water user shall be responsible for keeping turnouts free of trash and debris to insure adequate water delivery. The District will not be responsible for any damage to machinery, equipment, motor vehicles or other personal property that is either operated or stored on District rights-of-way.

11.04 Any water user, his authorized agent or employee or any other person who may use the right-of-way or other property of the District for movement of machinery, whether authorized or not, shall be responsible to the District for any damage to the District property. If it is necessary for the District to repair such damage, the offender must pay the costs of said repairs.

11.05 Any person entering upon District property does so at his or her own risk and any person using any canal right-of-way for any purpose assumes all risk of doing so and by use accepts responsibility for any damage to District property resulting there from, and for any damage to private property.

11.06 Under no circumstances shall the water user modify a District structure or meter box. If such modifications are made, the District shall remove the installation and bill the water user for any costs incurred.

11.07 The canals that have been built by the United States Department of the Interior, U.S. Bureau of Reclamation are under the care, control, and operation of the Madera Irrigation District. Use of these canals and all facilities thereof is under the exclusive jurisdiction of the District. Any person who travels the operating roads without authorization or in any manner molests or tampers with or damages any of the facilities is subject to prosecution.

11.08 **No** person shall enter upon any lands owned, operated or under the control of the District without permission of the District. Again, any person who travels the operating roads without authorization or in any manner molests or tampers with or damages any of the facilities is subject to prosecution.

11.09 The District will not be responsible for any loss or damage resulting from open ditch or drainage cuts, or improperly closed ditch or drainage cuts made by the water user.

11.10 No swimming or water-related recreational use of District canals is permitted.

11.11 No roadway gates or other obstruction across roads and canal banks used by the District shall be installed unless first approved by the District in writing and in accordance with District specifications. The installation of roadway gates that benefit both the District and the landowner may be subject to cost sharing by the District in accordance with District policies.

11.12 When the District has an easement for a canal or pipeline, but not owned by the District "has a secondary easement on each side of the open canal or other water conveyance facility for the maintenance, repair, cleaning, operation, and control of the open canal or other water conveyance facility and other use as may reasonably be required by the District in exercising those rights and in the maintenance, repair, cleaning, and operation of that easement and open canal or other water conveyance facility with equipment owned by, or available to, the district for that use at the time the right are exercised." *(California Water Code 22428 (a))*

SECTION 12: TAMPERING WITH WATER CONTROLS

12.01 No person (who is not an employee of the District) shall change, alter, or disturb any valve, gate, weir board, pump or other device used by the District to control the flow of water. Violation of this rule is a criminal act punishable by fine or imprisonment or both.

12.02 *Section 592 of the Penal Code of the State of California* provides as follows: Canals, ditches, flumes or reservoirs. "Every person who shall, without authority of the owner or managing agent, and with intent to defraud, take water from any canal, ditch, flume or reservoir used for the purpose of holding or conveying water for manufacturing, agriculture, mining, irrigation or generation of power, or domestic use, or who shall without like authority, raise, lower or otherwise disturb any gate or other apparatus thereof, used for the control or measurement of water, or who shall empty or place or cause to be emptied or placed, into any such canal, ditch, flume or reservoir, any rubbish, filth, or obstruction to the free flow of water, is guilty of a misdemeanor."

12.03 Any violation of Section 12.01 and/or Section 12.02 may be referred to the Madera County Sheriff's Department and District Attorney for appropriate legal action.

SECTION 13: ENCROACHMENT OF DISTRICT'S RIGHTS-OF-WAY AND PROPERTY

13.01 A permit will be required before any drains, trees, crossings, fences, structures, access use or other encroachments will be permitted to be used or installed upon the District's rights-of-way. Application for encroachment permit must be made at the District office and shall include payment of a filing fee.

13.02 Any and all encroachments must be approved by the District. If landowner facilities or equipment are required, they shall be constructed to the District's specifications at the sole expense of the applicant and maintained under the supervision and to the satisfaction of the District.

13.03 If an Encroachment Permit is granted, the applicant shall be solely responsible for, and shall indemnify and hold the District harmless from, any and all liability for injuries to persons or damage to property caused by or resulting in any manner from the applicant's exercise of the rights and privileges given in the Encroachment Permit.

13.04 All encroachment permits are subject to the conditions and specifications delineated on each individual permit.

13.05 Issuance of an Encroachment Permit in no way grants a permanent right. If the District determines at any future date that said works or access do in fact interfere with its operation, the said works shall be removed at the request of the District. The District's ditch or other right-of-way shall be restored to its original condition, at the sole expense of the applicant.

13.06 Granting of a permit in no way and to no extent surrenders or subordinates the Madera Irrigation District's control or supervision over the encroachment and rights-of-way involved.

SECTION 14: DISCHARGES INTO DISTRICT FACILITIES

14.01 All discharges of water into District conveyance or other facilities from any source, including but not limited to storm water, irrigation tail-water and filter system flushing, are prohibited unless such discharges have been permitted or otherwise approved by the District.

14.02 All discharges of water into District conveyance or other facilities shall only be permitted if they are in compliance with all District, local, state and federal criteria, standards, regulation or laws pertaining to water quality or other pertinent factors.

14.03 All permitted discharges of water into District conveyance or other facilities are subject to immediate termination if such termination is necessary to comply with any District, local, state or federal criteria, standards, regulation or laws.

14.04 NO Filter Flush discharges are allowed into the District facilities unless a permit was previously issued by the District. **All filter system flushing permits previously approved by the District will be re-evaluated and reconsidered for further approval.**

14.05 Water users who use their on-farm delivery systems to deliver groundwater are responsible for preventing leakage back into District canals. District canal gates are designed to control flow leaving the canal, not prevent the back flow of water into the canal. Water users may need to install a hub-end or pressure gate to prevent back flow into District canals.

14.06 Water users and landowners using agricultural chemicals or other substances in the vicinity of District water conveyance and delivery facilities shall take appropriate actions necessary to prevent over-spray, spillage or any other form of discharge that could contaminate District water supplies. Chemicals and contaminants including grease and oil leaks from irrigation pumps and equipments shall not be added into District facilities due to potential damage to meters and meter boxes and safety of District staff. Chemicals should only be added at landowner owned and operated facilities.

14.07 The District shall hold anyone who knowingly or negligently allows any pollutants to be discharged into the District facilities liable for all damages caused by pollutants and the cost of cleanup of all impacted areas.

SECTION 15: LIABILITY FOR DAMAGES

15.01 Failure to deliver water due to supply or canal capacity may occur from time to time based on the quantity available to the District, either from the United States, or from the District's other sources. In no event shall any liability accrue against the Madera Irrigation District, or any of its officers, agents or employees for any damage arising directly or indirectly from the District's failure, refusal or inability to deliver water, whether due to miscalculations in estimating needs, deficiency of water supply, drought or other causes.

15.02 Any claim for damages allegedly resulting from Madera Irrigation District's acts or omissions of its employees requires that a verified claim giving full particulars on date, occurrence, area, crop, extent of damage, etc. be filed by the claimant pursuant to the California Government Tort Claims Act with the General Manager

at the Madera Irrigation District office on a form provided by the District. Claim forms are available at the District office.

15.03 The District reserves the right to stop the flow in any stream, channel, pipeline or canal at any time the Board of Directors or the General Manager may determine such action to be necessary.

15.04 The District will not be liable for any damages to third persons caused by the use of its facilities, equipment, rights-of-way or property by persons other than District employees.

SECTION 16: PENALTY FOR NON-COMPLIANCE

16.01 Refusal or failure to comply with the requirements hereof or violation of any of the foregoing Rules and Regulations shall be sufficient cause for termination of District services until full compliance has been made.

16.02 The District reserves the right to use all available legal remedies in connection with the enforcement of these Rules and Regulations

SECTION 17: MODIFICATION; SEVERANCE

17.01 All of these Rules and Regulations are subject to change as deemed necessary by the Board of Directors.

17.02 If any of these Rules or Regulation or any portion thereof is for any reason held to be invalid, unlawful, unconstitutional or unenforceable in application as to any person or circumstances, the remainder of these Rules and Regulations shall not be affected and shall be valid and enforceable to the fullest extent permitted by law.

SECTION 18: Water Theft

18.01 Madera Irrigation District employees are not “water cops”. If an MID employee suspects water theft is occurring the District immediately calls and reports the matter to the Madera County Sheriff’s Department. During 2009 four incidents of suspected water theft were reported to and investigated by the Sheriff’s office.

Water theft includes but is not limited to any unauthorized taking of District water without a water delivery agreement and/or intentionally disabling or altering District flow meters.

California Penal Code

Section 592. (a) Every person who shall, without authority of the owner or managing agent, and with intent to defraud, take water from any canal, ditch, flume, or reservoir used for the purpose of holding or conveying water for manufacturing, agricultural, mining, irrigating, generation of power, or domestic uses is guilty of a misdemeanor.

(b) If the total retail value of all the water taken is more than four hundred dollars ($400), or if the defendant has previously been convicted of an offense under this section or any former section that would be an offense under this section, or of an offense under the laws of another state or of the United States that would have been an offense under this section if committed in this state, then the violation is punishable by imprisonment in the county jail for not more than one year, or in the state prison.

Attachment C: Measurement Device Documentation

All agricultural water suppliers subject to SB X7-7 Agricultural Water Measurement Regulation must provide the following information if applicable.

A. *Legal Certifications and Apportionment Required for Water Measurement – Lack of Legal Access to Farm-gate*
B. *Engineering Certification and Apportionment Required for Water Measurement*
C. *Description of Water Measurement Best Management Practices*
D. *Documentation of Water Measurement Conversion to Volume*
E. *Device Corrective Action Plan Required for Water Measurement*

The District is currently working on the SB X7-7 Plan. When adopted, the plan will be inserted in this Attachment C.

Attachment D: District Sample Bill

MADERA IRRIGATION DISTRICT
12152 Road 28 1/4
Madera, CA 93637
(559) 673-3514
Website: Madera-id.org
After Hours Emergency:
(559) 474-7572

WATER STATEMENT

For the Month of	September
Statement Period	9/1/12-9/30/12
Previous Balance	$7,363.40
Penalty	
Payments/Adjustments	
Current Charges	$4,408.00
Total Due	**$11,771.40**

FARMER ADDRESS

Account #

Ditch Name	Ditch#/T.O.#	Start Date	Stop Date	Acre Feet	Water Rate	Total
	321/29	8/2/2012	8/6/2012	15.22	72.50	$1,103.45
		8/25/2012	8/31/2012	22.23	72.50	$1,611.67
			Water Use for Turnout	**37.45**		**$2,715.12**
	321/30	8/2/2012	8/8/2012	13.00	72.50	$942.50
		8/22/2012	8/28/2012	10.35	72.50	$750.38
			Water Use for Turnout	**23.35**		**$1,692.88**

TOTAL BALANCE DUE **$11,771.40**

September Acre Feet Use:	**60.80**	**YTD:**	**136.71**
Regular COS	60.80		

PLEASE RETURN THIS PORTION WITH YOUR REMITTANCE

A PENALTY OF 2% WILL BE ADDED TO THE BALANCE IF PAYMENT IS NOT RECEIVED ON THE LAST TUESDAY OF THE MONTH (POSTMARKS NOT ACCEPTED)

Remit to:

Madera Irrigation District
12152 Road 28 1/4
Madera, CA 93637

September, 2012

Account #

AMOUNT DUE **$11,771.40**

REMITTANCE AMT: $

Attachment E: District Water Shortage Plan

The District is currently working on a District Water Shortage Plan. When adopted, the plan will be inserted in this Attachment E.

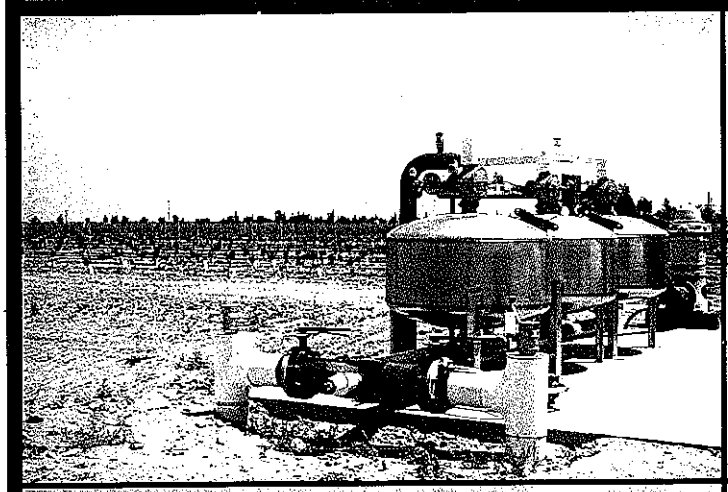
Attachment F: Groundwater Management Plan

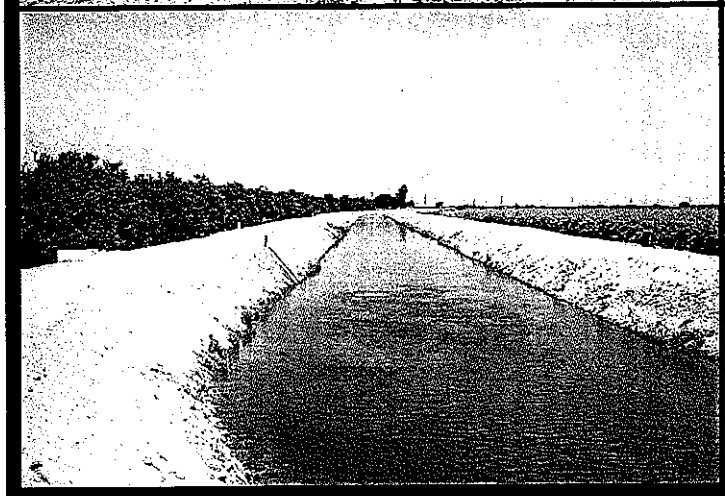
File Copy Amended Nov 2000

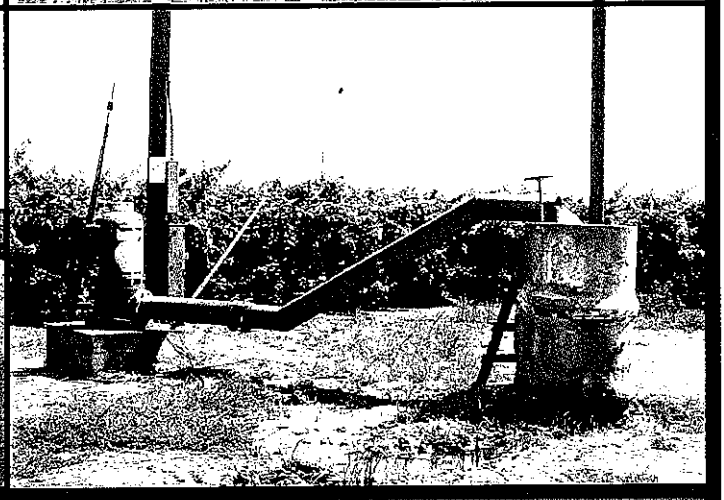
AB3030 Groundwater Management Plan

May 1999

Madera Irrigation District







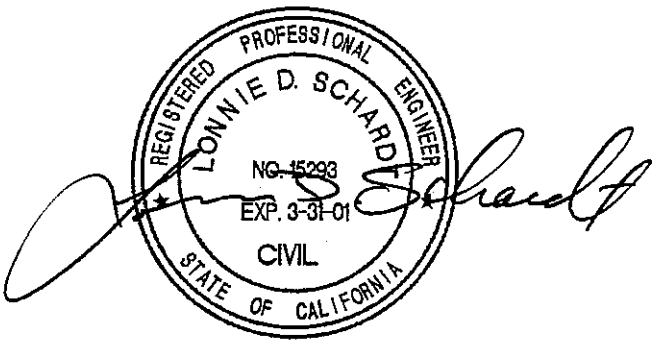
BOYLE ENGINEERING CORPORATION

AB3030 Groundwater Management Plan

Madera Irrigation District

Boyle Engineering Corporation

Lonnie D. Schardt, PE Project Manager
Kassy D. Smith, EIT Project Engineer



FR-M50-101-01

May 1999

BOYLE 1044 E. Herndon Avenue, Suite 108, Fresno, CA 93720

Table of Contents

Section 5 Regulations Pertaining to Exportation of Groundwater

Figures

Tables

Section 1
Introduction

1.1 Legal Authority

In some portions of California, groundwater represents an easily accessible, inexpensive alternative to surface water. Because the groundwater source is easily accessible, it has been heavily relied upon to meet supplemental water supply needs. Excessive use of groundwater has led to land subsidence, groundwater quality deterioration, and overdraft in some areas. Overdraft is the condition whereby the groundwater is extracted in quantities exceeding the long-term recharge replenishment capability of the groundwater basin.

In 1992, the California Assembly took action to address the lack of coordinated groundwater resource management in the State Assembly Bill 3030 (Water Code Sections 10750-10755) which provides the legislative authority for local water agencies to manage groundwater resources specifically. AB3030 enables local water agencies, such as the Madera Irrigation District (District), to develop and implement a groundwater management plan (GMP). The purpose of any GMP is to establish the role of the local agency in managing the local groundwater resources so as to maximize the water supply and to protect the quality of the supply.

The law contains 12 components that may be included in the GMP. Each component may play some role in evaluating or operating a groundwater basin so that groundwater can be managed to maximize the total water supply while protecting groundwater quality. Following the development of any GMP, the District must plan for a period of at least 35 days so as to allow for protests against the implementation of the plan to be filed. If the majority does not protest within the 35-day review period, the GMP can be adopted and implemented.

1.2 Past Groundwater Management Practices

The District works closely with the California Department of Water Resources and the Bureau of Reclamation to monitor the groundwater level and quality within the District. Twice a year (once in the spring, once in the fall), the District measures the depth to the static water level in several wells throughout the District. These measurements indicate that the static water table averages a decline of approximately 1.25 feet per year. However, the depth to the static water table varies throughout the District. Those areas in the District adjacent to the San Joaquin River have static water levels of 40 to 50 feet, while the deeper static water levels are as much as 200 feet. On the average, the static water level is 82 feet below the ground surface. In an effort to replenish the groundwater supply, the District operates ponds and canals that contribute to the recharge of the groundwater. Water is routed through natural channels such as the Fresno River, the channel below the Fanchi weir, and Cottonwood Creek,

when available, even when there are no riparian diversions. A list of the designated groundwater recharge facilities is provided below:

Name	Location[1] Township/Range/Section	Area (acres)
Lake Madera	T10S/R18E/S34	300
Airport Pit	T11S/R17E/S10	12
Burgess Pond	T11S/R18E/S32	5
Pistoresi Pond	T11S/R17E/S28	10
Allende Pond	T12S/R18E/S15	5
Russell Pond	T12S/R18E/S08	19
Dirt/Beeman Pond	T12S/R18E/S17	9
Hospital Pond	T11S/R18E/S30	3

[1]See Figure 1-1 for the locations of these recharge basins.

Water used for groundwater recharge is taken from the Fresno and San Joaquin Rivers. In addition to the recharge basins mentioned above, groundwater recharge is accomplished through the use of natural channels, unlined canals, and agricultural lands.

1.3 Goals of the Groundwater Management Plan

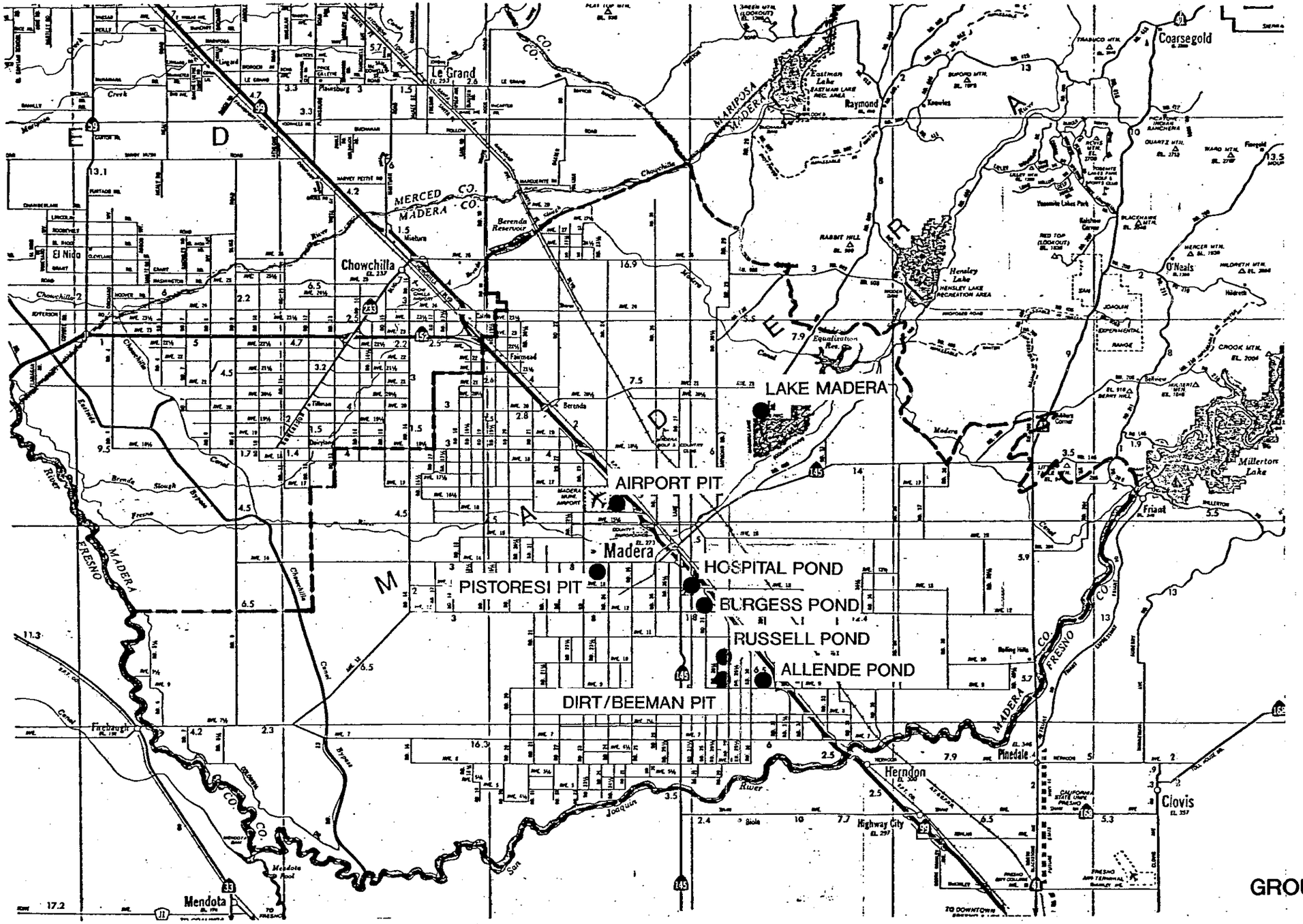
The District plans to develop a groundwater management program that is consistent with the following mission statement:

> *The District's primary mission is to obtain and manage affordable surface and groundwater supplies in a manner which will ensure the long-term viability of irrigated agriculture in the District.*

The District recognizes that groundwater is a major factor in being able to fulfill its mission statement. As a result, the District is preparing a groundwater management plan, the primary goal of which is to define the role of the District in managing the local groundwater resources so as to maximize the total water supply and protect the quality of the supply. To accomplish this goal, the District intends to evaluate and implement programs that will preserve the long-term viability of the groundwater resources within and adjacent to the District.

Other primary goals of this GMP are listed below:

- Ensure the long-term availability of high-quality groundwater.
- Maintain local control of groundwater resources within the District.
- Minimize the cost of groundwater use.



GROUNDWATER RECHARGE FACILITIES

MADERA IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

M5010101

BOYLE ENGINEERING CORPORATION

FIGURE 1-1

- Prohibit the net export of groundwater from the District and use of groundwater to replace surface water removed from the District as a result of a transfer.
- Minimize the impacts of groundwater pumping, including subsidence, overdraft, and soil productivity.
- Prevent unnecessary restrictions on the private use of the District's groundwater resources.
- Ensure coordination between the District, local, and regional groundwater management activities.
- Ensure efficient use of the District's groundwater resources and minimize deep percolation in areas where it may contribute to the shallow groundwater problem through the use of an effective water conservation and management program.
- Ensure that the District's water users understand the steps they can take to protect and enhance their groundwater supply.
- Encourage water conservation by the farmers, which includes providing information on efficient irrigation practices.
- Support the programs for the agricultural reuse of reclaimed water.
- Coordinate with other local irrigation districts and the city and county of Madera to preserve local water rights.

Section 2
Description of Groundwater Management Plan Area

2.1 Description of District

The Madera Irrigation District encompasses an area of 128, 924 acres on the San Joaquin valley floor in Madera County. The District varies in width from five to thirteen miles. It is bounded to the south by the San Joaquin River with the northern boundary at approximately 10 miles north of the City of Madera. The Eastern boundary varies from Highway 99 to 1-1/2 miles east of Highway 99. In addition, there are several remote island areas. Figure 2-1 shows the general location of the District. Within the District boundaries there is an extensive open flow canal system extending approximately 315 miles. In addition, there are approximately 115 miles of pipelines that are used to convey the water throughout the District.

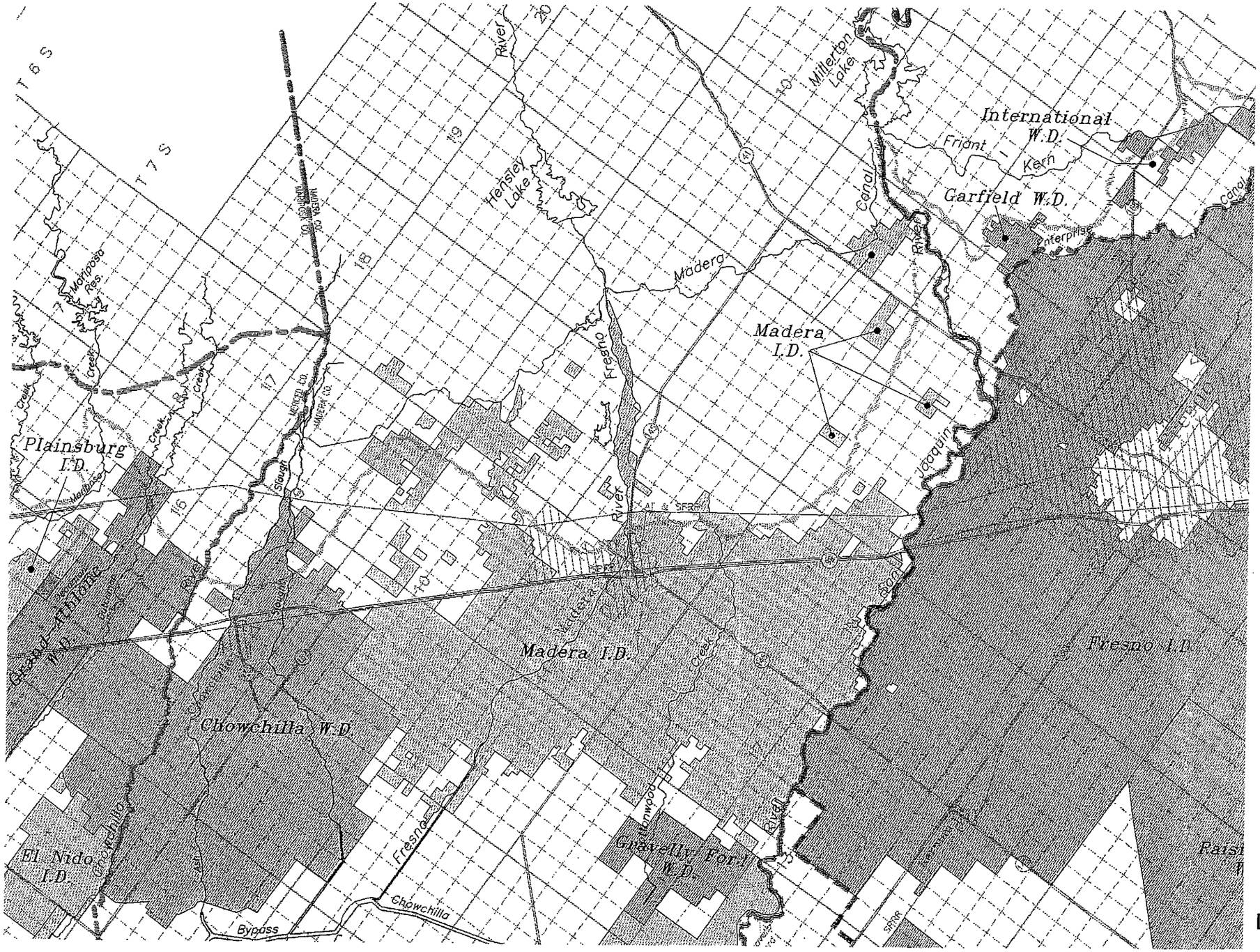
2.2 History

Madera Irrigation District was formed in 1920 with approximately 350,000 acres encompassing the District. The formation was the effort of a 40-member committee organized to bring water to the Madera area. The District purchased a site for Friant Dam and filed for accompanying water rights. These actions were followed by several years of litigation with Miller and Lux and of negotiations with the State Water Authority. These efforts failed leading the District to contract with the United States Bureau of Reclamation. This contract granted the District a guaranteed water supply of a maximum of 270,000-acre feet per year, for an area of 172,000 acres.

Several times since the formation of the District, the area boundary has fluctuated. In 1950, approximately 46,000 acres were excluded from the District to permit the formation of the neighboring Chowchilla Water District reducing the gross area to 112,500 acres, of which 94,500 acres is irrigable area. In 1975, the District added 15,000 acres as required by a contract with the Bureau that provided 24,800-acre feet on average from Hidden Dam. In 1983, the District joined the Mid Valley Water Authority in an effort to obtain additional water supplies for the District.

2.3 Location/Facilities

The District's water and distribution system is a combination of open flow primary and secondary laterals, enclosed conduit, and natural streams. There are approximately 315 miles of open flow canals and laterals, 115 miles of pipeline, and 102 miles of natural streams used for District conveyance and distributions. The open flow canals are comprised of approximately 90 miles of unlined canals and



SCALE 1" = ±4.2 MILES

DISTRICT BOUNDARY MAP

MADERA IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

M5010101

BOYLE ENGINEERING CORPORATION

FIGURE 2-1

225 miles of the Bureau of Reclamation built "lined" canals. The pipelines range in size from 12 inches to 84 inches with about half of the pipelines being cast in place. The open flow laterals range in capacity from 5 cfs to 340 cfs. Many of the non-piped laterals have been in use for over 100 years.

With the exception of a few small pump stations, the distribution system is a gravity system. However, there are approximately 1,600 turnouts, and about one-third are equipped with grower lift pumps in order to obtain adequate on-farm flow. There are no reservoirs or regulating reservoirs located within the District.

The District receives water via the Madera Canal from Friant Dam through natural streams and open flow primary laterals. Fresno River water is available from both controlled release and uncontrolled flows from Hidden Dam. Water from the Madera Canal may also be released into the Fresno River. Water is diverted from the Fresno River at the District's Fanchi Diversion Weir on the east side of the District. This provides service to approximately 45,000 acres. The Fresno River is also the conveyance to direct pump dwellers, the Island Tract pumping plant service area, and riparian users.

Franchi

2.4 Size

The District encompasses an area of 128,294 acres on the San Joaquin Valley floor in Madera County. The District generally varies from 5 to 13 miles in width bounded on the south by the San Joaquin River, with the northern boundary approximately 10 miles north to the city of Madera. The eastern boundary varies from Highway 99 to 1.5 miles east of the highway. There are several remote island areas that are also included.

2.5 Terrain and Soils

Lands in the District are gently sloping from northeast to southwest, with a fall of approximately 5 feet per mile. The District can be divided into two major segments in terms of terrain and soils:

- Recent alluvial fans and floodplains
- Older alluvial fans and terraces

The soils of the recent alluvial fans and floodplains cover the area from the Fresno River south to the San Joaquin River and primarily consist of the Traver-Chino and the Hanford-Tujunga types of soil. These soils are categorized as Class 1 and Class 2 soils and exhibits high surface and subsurface permeability.

The soils of the older fans and terraces cover the 10-mile-wide area from the Fresno River north to the District's northern boundary. The predominant soils classification for this area is of the San Joaquin-Madera association. They are generally classified as Class 3, 4, and 5, and generally exhibit low permeability at both the surface and subsurface levels.

2.6 Climate

Annual precipitation in the District averages about 10.3 inches, the majority of which falls during the months of November through April. Summer maximum temperatures frequently exceed 100°F, and winter temperatures vary from the high 30s to low 40s at night to the low 50s during the day. Normally, the frost period is between November and mid-March.

Although the climate in the District is generally dry with mild winters and hot summers, humidity can be as high as 90 to 100 percent during the early morning in December and January. Inversion layers accompanied by "Tule fog" are not uncommon during the winter months.

2.7 Water Supply

Since the majority of the precipitation falls in the winter, most landscaping, crops, and agriculture are dependent upon irrigation during the growing season. The District's main source of water is through water diversions from Friant Dam. Other sources of water for the District include Hidden Dam as well as from water rights on the Fresno River, including Big Creek Diversion from the Merced River watershed and the Soquel Diversion from the San Joaquin watershed.

In 1951, the District negotiated a contract with the Bureau of Reclamation (Bureau) for the water from Friant Dam. The contract provided for 85,000 AF of Class I water and 186,000 AF of Class II water. Class I is a relatively firm supply, whereas Class II is on an as-available basis and its quantity varies from year to year. All water supplied under this contract with the Bureau is through the Friant-Kern and Madera canals, which redistribute the waters of the San Joaquin River downstream of the Friant Dam. On the average, 100 percent of the Class I and 48 percent of the Class II water is provided to the District annually.

Water supplied to the District under the Hidden Dam contract with the Bureau is for the conservation yield of the project. However, the project has stringent flood control criteria that precludes any realistic carryover storage or early season storage.

The Big Creek and Soquel Diversions provide an average annual supply of 10,000 AF and 9,700 AF, respectively. The Fresno River adjudicated and appropriative average annual supply is approximately 20,000 AF and is inclusive of the Big Creek and Soquel diversions.

The following table summarizes the amount of water the District has been supplied from the various sources over the 10-year period of 1988 to 1997.

Year	Water Supplied to District[1] (AF)
1988	92,162
1989	110,801
1990	79,573
1991	122,090
1992	98,962
1993	330,248
1994	123,084
1995	327,376
1996	307,266
1997	295,302

[1]The water supplied includes transfers in and out of the supply and spill lost while in the San Joaquin River.

The total amount of water supplied to the District on an average annual basis is 188,686 AF from the various sources based on this 10-year period. Despite the amount of water available per year, the District is only able to provide a supplemental water supply to its users, all of which are agricultural.

2.8 Water Demand

The total water demand for the District varies from year to year. Climate is the major cause of this variation. In very wet years, the water demand on the District is significantly less than during drought years. The District reports that the water deliveries from 1988 through 1997 are as shown in the table below.

Year	Water Delivered to Growers (AF)
1988	54,592
1989	62,096
1990	46,828
1991	79,700
1992	62,896
1993	154,290
1994	72,141
1995	129,298
1996	138,909
1997	154,821

The average total grower deliveries for the 10-year period of 1988 to 1997 is 95,557 AFY. This water delivered to the growers originates at one of the District's sources for surface water supply. Additional water required for the farming of crops within the District is extracted from the groundwater table.

The water provided to growers is used for a variety of different crops. Cropping patterns within the District have changed drastically with time. Table 2-1 provides a list of crops grown within the District as well as the number of acres of that crop per year. The table ranges in time from 1962 to the latest available data in 1997. This data is supplied annually to the District in the annual crop survey. In addition, Table 2-1 provides the 5-year average number of acres for each crop for the 5-year period of 1993 to 1997. The average number of acres of irrigated farmland for this period is 168,779. However, the number of acres designated for agriculture has continuously increased since 1962 with an average yearly increase of approximately 2 percent. The continuous increase in the amount of farmland can be attributed to the growth of the District.

Table 2-2 provides a list of the different crops grown within the District as well as the average amount of water applied to the crop per year and the average total amount of water applied per year. The average number of crops for the period of 1993 to 1997 was used in determining an average crop water demand per year. From 1993 to 1997, the number of acres per crop has been relatively constant as compared to earlier years as shown in Table 2-1. The total annual water applied to the various crops throughout the District is 318,740 AF as shown in Table 2-2. There are a variety of sources used to supply this amount of water to the crops. The various sources include the following:

- Surface water delivered from the District
- Groundwater extracted from the groundwater table
- Precipitation

Another factor that affects the water demand for the District is urban growth. The majority of the city of Madera is included within the boundaries of the District and has continuously urbanized with time. Table 2-3 shows the number of acres of urban/industrial land within the District. As shown in the table, it is apparent that the acres of urban/industrial land has increased significantly since 1962. The District has changed its boundaries several times since the original boundaries. Therefore, the amount of land designated as urban/industrial has continuously changed. As urbanization continues in the areas surrounding the city of Madera, land that at one time was primarily agricultural has been converted to developed land. This reduces the amount of water used by crops each year as well as the recharge of the groundwater basin.

Figure 2-2 shows the increase in urban/industrial land for the period 1992 to 1997. For this time period, there has been a continuous increase in the amount of urban land. As shown on Figure 2-2, the projected amount of urban land in the year 2000 is approximately 14,200 acres; and in 2010, the amount of urban land is projected to be as much as 17,500 acres. This is a projected increase of approximately 3 percent per year for the next 12 years. The continuous urban growth will impact the condition of the groundwater basin.

Table 2-1
Madera Irrigation District
Groundwater Management Plan
Summary of Crop Demand

Year	Grains	Rice	Cotton	Sugar Beets	Corn	Other Field	Alfalfa	Pasture	Tomatoes	Almonds/ Pistachios	Other/ Truck	Grapes	Citrus/ Olives	Deciduous	Total Acres
	Acres														
1952	6460	0	38616	0	83	241	14217	14798	0	116	1695	18501	0	2069	74358
1962	4702	0	23731	260	2494	980	13839	14535	0	1267	1537	28381	28	3879	99254
1972	3210	0	11994	40	3083	2217	11218	12766	0	6118	1686	40009	619	3769	129934
1973	3063	0	11871	0	4371	1568	8521	13469	0	6501	103	42773	629	3652	134254
1974	4511	0	13954	163	3070	2934	8057	12080	0	7520	54	43953	587	3779	135946
1975	11149	0	8604	237	3478	278	8357	11224	0	8642	209	44209	582	3759	137250
1976	10696	0	8638	321	2867	218	8506	11148	0	8699	83	44556	583	4611	139360
1977	5129	0	13530	54	1951	507	7987	10915	0	8927	2	45348	709	4842	141486
1978	5908	0	12087	0	4488	1846	6079	11298	0	9308	62	46656	554	4929	145614
1979	6262	0	13375	0	2143	1119	4169	9613	0	10504	70	48379	551	4802	147838
1980	7206	0	10947	0	3826	921	3744	8090	0	11252	50	50509	565	5034	151000
1981	6101	0	8953	0	3945	877	3137	7252	0	12211	65	52338	568	5012	154892
1982	8907	0	7244	0	1942	1600	2568	5861	0	13304	433	53933	564	5380	158950
1987	3802	0	6531	0	2704	972	1638	4434	0	13758	907	53819	923	5661	159004
1992	3698	0	4863	0	1795	114	1819	3087	77	15673	893	53182	1285	6651	161696
1993	2485	0	3939	0	3172	0	1461	3481	172	15876	811	53817	1340	6634	164262
1994	1525	0	4223	0	1664	0	1113	3647	3	17093	1163	52897	1447	6748	165996
1995	3431	0	4432	0	1807	0	1056	3716	10	16508	1318	54180	675	7339	167492
1996	3320	0	3122	0	1966	398	956	3981	10	17487	1408	54755	643	7500	171568
1997	941	0	2072	0	3632	207	1085	4451	7	18328	1285	54765	905	7548	174578
5-year Average, Acres	2340	0	3558	0	2448	121	1134	3855	40	17058	1197	54083	1002	7154	168779

Table 2-2
Madera Irrigation District
Groundwater Management Plan
Summary of Five-Year Average Annual Crop Water Requirements

Crops	Five-Year Average Annual Area[1] (acres)	Unit Water Applied[2] (AF/ac)	Annual Total Water Applied (AF)
Grains	2,340	1.3	3,042
Rice	0	–	0
Cotton	3,558	3.3	17,741
Sugar Beets	0	3.2	0
Corn	2,448	2.8	6,855
Other Field	1,211	2.9	351
Alfalfa	1,134	4.5	5,103
Pasture	3,855	4.5	17,348
Tomatoes	40	3.0	120
Other Truck	1,197	2.2	2,634
Almonds/Pistachios	17,058	3.1	52,880
Grapes	54,083	3.6	194,699
Citrus/Olives	1,002	2.5	2,505
Deciduous	7,154	3.0	21,462
Totals			318,740

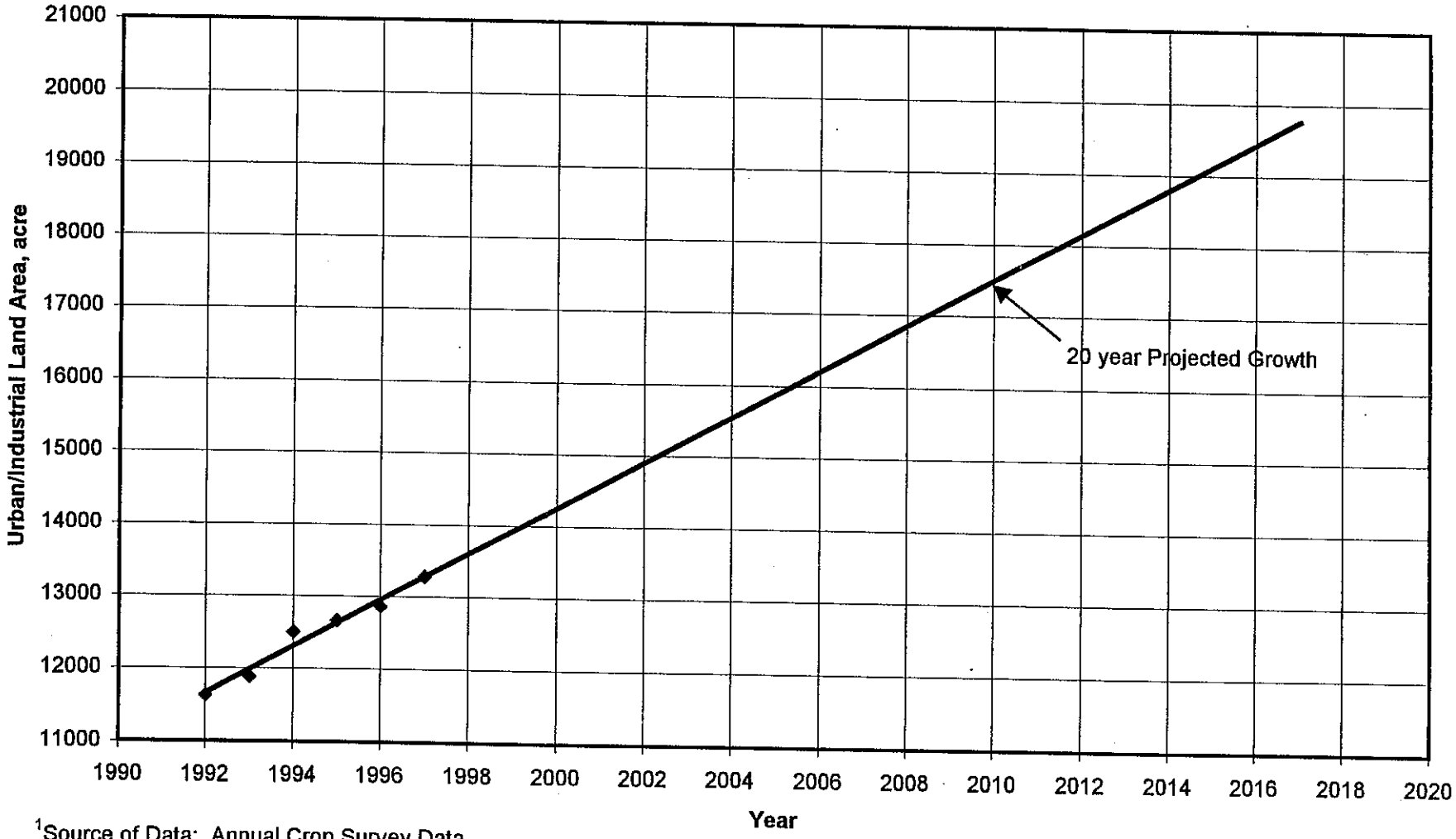
[1]Summary of Crop Acres provided by California Department of Water Resources.
[2]Unit applied water values provided by California Department of Water Resources.

Table 2-3
Madera Irrigation District
Groundwater Management Plan
Urban Growth Within the District

Year	Urban/Industrial Land Area (acres)
1962	9824
1972	11008
1973	11278
1974	11300
1975	11417
1976	11449
1977	11632
1978	11836
1979	12020
1980	11785
1981	11346
1982	12194
1987	10727
1992	11631
1993	11881
1994	12502
1995	12666
1996	12862
1997	13279

[1]Farmsteads were excluded from urban/industrial land area after 1987. Prior to 1987, farmsteads were incorporated into urban land area.

Figure 2-2
Madera Irrigation District
Groundwater Management Plan
Urban/Industrial Land Area Vs. Year[1]



[1]Source of Data: Annual Crop Survey Data

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2.9 Groundwater Quality

Groundwater quality is influenced by various factors such as the quality of watershed runoff, the mineral content of soils, land use practices such as fertilizer and pesticide application, and localized waste disposal practices. The use of groundwater for domestic and agricultural purposes is only feasible if it is of an acceptable quality. As a result, this GMP includes provisions to help maintain the groundwater at an acceptable quality.

Groundwater quality within the Madera groundwater basin is currently not monitored by the District. The only parameter that is monitored is the depth to static water level. However, between 1959 and 1989, the quality of the groundwater was monitored by the United States Bureau of Reclamation. Table 2-4 lists all the constituents that were measured as well as the range and average values for the period of record. In addition, Table 2-4 provides the current EPA standards for drinking water parameters. For the period of record between 1959 and 1989, the groundwater within Madera Irrigation District is of excellent quality as it does not exceed any of the maximum contaminant levels for secondary drinking water standards.

However, in recent years, the groundwater in areas within the District boundaries has experienced problems with DBCP and salt brine contamination. The salt brine plume is located in the vicinity of the Tri-Valley Growers olive plant (Oberti Olives) in the Avenue 13/Road 26 area. Remediation activities to correct this problems are being taken by Tri-Valley under the regulatory direction of the Regional Water Quality Control Board. There is a large plume of DBCP that underlies the District. The apex of the DBCP plume is located at Avenue 12 near Highway 99 and flows southwesterly through the basin. The DBCP plume was initially discovered in 1979 by the County of Madera Public Health officials. In several places, a large concentration of DBCP was found. In 1993, another study was done to determine whether the plume continued to exist and the concentration of DBCP in the groundwater. The results of the 1993 study indicated that the plume continues to move in a southwest direction. However, the concentration of DBCP in the groundwater had significantly decreased.

2.10 Groundwater Monitoring

Madera Irrigation District monitors an average of 229 wells located throughout the District twice a year. The semiannual well measurement programs are conducted in October and February of each year. These dates were selected because they best characterize the maximum depressed and recovery levels associated with the growing season. The measurements are accomplished by sounding each well in a static condition. This information enables the District to monitor groundwater trends and estimate District-wide pumped groundwater quantities. It also allows the District to calculate seasonal application efficiency more accurately. Fifteen of the monitored wells were selected to be representative of the groundwater levels within the District. Table 2-5 provides the static water level for the 10-year period of 1989 to 1998 for the spring season. The water levels for the fall are listed in Table 2-6 for the same 10-year period. The approximate location of the measured wells can be found on Figure 2-3.

Table 2-4
Madera Irrigation District
Groundwater Management Plan
Summary of Groundwater Quality[1]

Constituent	Unit	Range	Average	EPA Standard Drinking Water[2]
Specific Conductance	µmhos	126-1,370	569	900
Total Dissolved Solids	mg/L	79-989	361	500
Aluminum	mg/L	<0.010-0.020	<0.010	0.2
Arsenic	mg/L	0.001-0.003	0.00156	1,000
Barium	mg/L	0.052-0.180	0.0888	1.0
Bicarbonate	mg/L	52-490	169	N/A
Boron	µg/L	0-900	80.8	--
Bromide	mg/L	0.05-0.35	0.14	--
Cadmium	mg/L	<0.001—0.001	<0.001	0.005
Calcium	mg/L	10.0-150	42.7	N/A
Chloride	mg/L	8-250	53.2	250
Chromium	mg/L	<0.001-0.008	0.0045	0.5
Cobalt	µg/L	<1-1	<1	--
Copper	mg/L	<0.001-0.003	0.0014	1.0
Fluoride	mg/L	0-0.30	0.10	1.4
Iodide	µg/L	1-11	3.1	--
Iron	mg/L	0-0.023	0.0061	0.3
Lead	µg/L	<1-<5	<5	Lead & Copper Rule
Lithium	µg/L	<4-25	12.4	--
Magnesium	mg/L	2.1-34	12.5	N/A
Manganese	mg/L	<0.001-0.005	0.0013	0.05
Mercury	µg/L	<0.1-<0.1	<0.1	--
Molybdenum	µg/L	<1-4	1.2	--
Nickel	mg/L	<0.001-0.001	<0.001	0.1
Nitrate	mg/L	0-53	19.0	45
Nitrate & Nitrite	mg/L	2.3-12	6.7	--
Phosphorus	mg/L	0.03-0.13	0.08	--
Potassium	mg/L	0-14	4.5	--
Selenium	mg/L	<0.001-0.001	<0.001	0.05
Silver	mg/L	<0.001	<0.001	0.1
Sodium	mg/L	10-110	38.5	N/A
Strontium	µg/L	120-830	362	--
Sulfate	mg/L	0-63	15.0	600
Vanadium	µg/L	1-30	14.3	--
Zinc	mg/L	0.005-0.098	0.0332	5.0

[1]Data as reported in the U.S. Bureau of Reclamation's Irrigation Suitability Land Classification Report, September 1993.

[2]SecondaryWater Quality Standards as required by California Safe Drinking Water Act.

Table 2-5
Madera Irrigation District
Groundwater Management Plan
Summary of Spring Depth to Groundwater of Representative Wells[1]

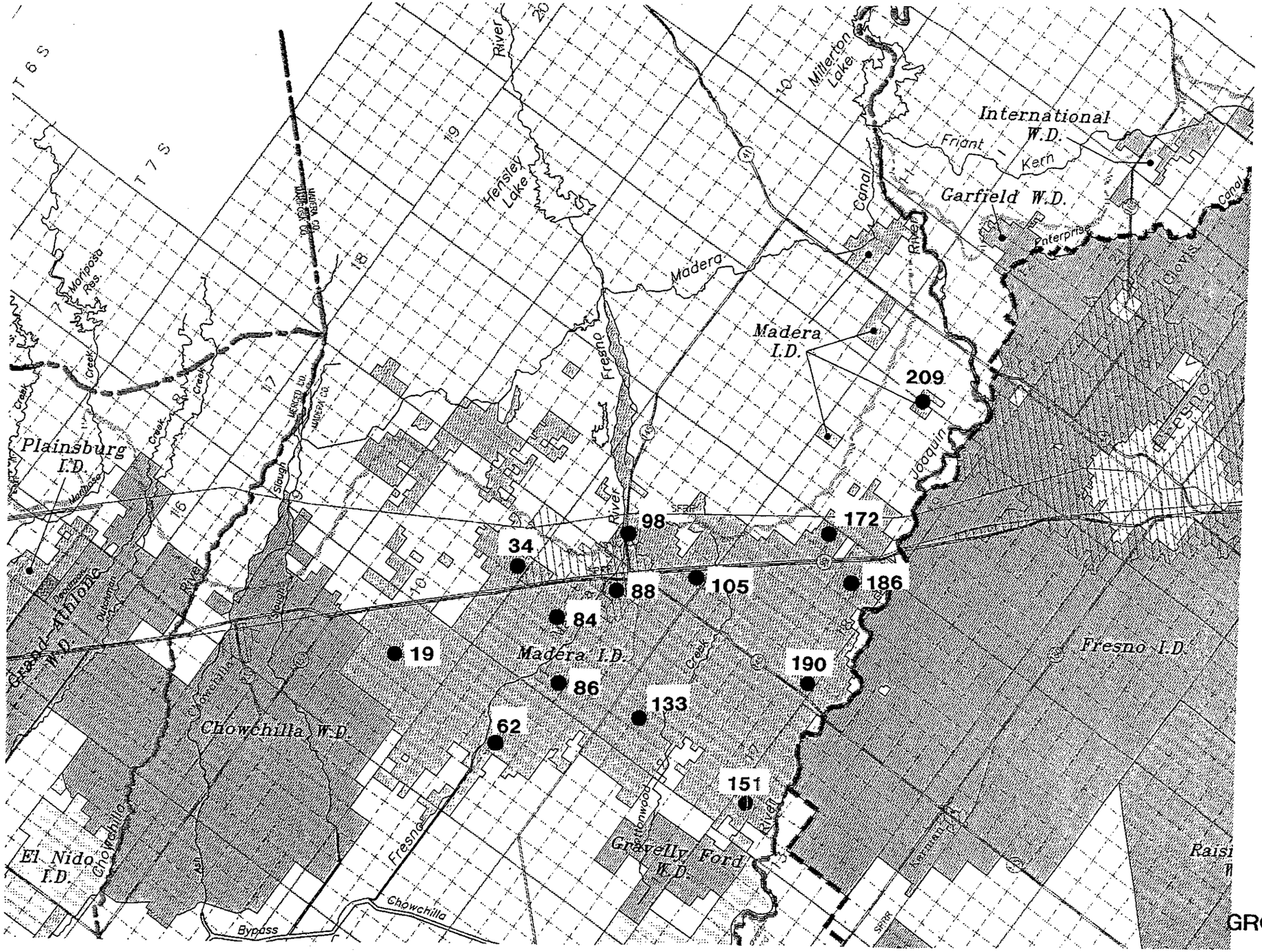
MID Lic. No.	State Well No.	Depth to Groundwater									
		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
19	T10S/R16E/S26-B1	144.8	139.0	150.0	153.0	164.2	160.0	168.4	165.1	160.0	156.0
34	T10S/R17E/S34-A1	147.8	141.2	151.1	156.0	170.0	164.6	169.4	176.4	182.1	183.7
37	T10S/R18E/S07-D1	170.0	155.0	161.6	166.6	176.2	178.7	179.2	178.6	182.6	184.0
62	T11S/R16E/S15-L1	98.1	94.6	98.1	102.0	109.6	109.8	110.0	106.3	105.2	102.1
84	T11S/R17E/S16-H1	96.1	101.0	108.2	110.2	115.9	117.2	120.0	121.6	121.7	121.1
86	T11S/R17E/S18-B1	90.2	93.2	104.6	105.2	111.8	110.0	115.0	112.2	110.6	108.6
88	T11S/R17E/S24-D2	98.4	101.1	128.0	124.1	130.7	134.3	134.9	132.9	131.5	130.6
98	T11S/R18E/S18-A1	73.0	--	--	--	84.1	82.4	82.6	80.5	78.3	78.2
105	T11S/R18E/S31-A3	92.2	97.5	102.9	104.7	106.3	110.0	110.9	110.0	112.1	110.0
133	T12S/R17E/S18-H1	80.8	93.0	99.8	101.2	108.7	102.7	105.6	102.0	101.6	98.6
151	T12S/R17E/S32-H1	69.8	75.9	88.0	88.9	90.1	82.4	85.1	83.1	81.0	77.2
172	T12S/R18E/S13-R1	93.8	103.2	108.3	110.6	113.0	103.2	104.6	104.0	103.0	102.3
186	T12S/R18E/S26-R1	76.5	81.7	90.0	92.3	97.9	90.0	94.2	89.1	86.2	81.8
190	T12S/R18E/S31-J1	66.5	72.5	86.3	86.9	93.0	86.2	89.6	86.4	85.1	81.0
209	T12S/R20E/S18-N1	137.7	151.8	160.5	165.0	169.2	161.7	166.4	168.6	166.0	168.4

[1]Measurements as reported in Madera Irrigation District - Semiannual Groundwater Report, Spring 1998.

Table 2-6
Madera Irrigation District
Groundwater Management Plan
Summary of Fall Depth to Groundwater[1]

MID Lic. No.	State Well No.	Depth to Groundwater									
		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
19	T10S/R16E/S26-B1	141.1	144.8	159.0	166.6	172.2	162.4	178.2	172.8	177.4	180.6
34	T10S/R17E/S34-A2	147.0	147.8	157.3	159.1	176.3	164.0	183.1	184.6	192.8	192.9
37	T10S/R18E/S07-C1	--	170.0	197.3	197.8	171.1	200.0	207.4	190.0	207.6	209.5
62	T11S/R16E/S15-L1	91.5	98.1	108.7	112.7	115.6	112.5	117.2	108.6	114.0	112.6
84	T11S/R17E/S16-H1	114.7	116.2	124.9	126.7	133.3	127.3	135.2	135.1	137.3	148.0
86	T11S/R17E/S18-B1	103.2	109.1	118.1	120.1	122.3	118.4	124.6	120.0	127.3	127.5
88	T11S/R17E/S24-D2	110.0	112.9	138.6	142.2	142.6	143.6	138.2	134.6	138.1	138.7
98	T11S/R18E/S18-A1	--	--	--	--	89.2	84.1	93.7	85.0	85.0	84.6
105	T11S/R18E/S31-A3	100.0	104.2	115.0	117.4	119.7	115.4	120.1	115.5	117.2	113.4
133	T12S/R17E/S10-H1	87.0	91.6	100.5	107.5	110.9	108.2	111.1	107.7	108.0	105.6
151	T12S/R17E/S32-H1	73.1	86.0	91.3	93.9	97.0	93.4	96.1	88.4	87.1	85.4
172	T12S/R18E/S13-R1	99.7	107.7	112.0	114.0	116.6	106.7	110.3	107.4	105.2	105.5
186	T12S/R18E/S26-R1	86.5	91.5	96.2	98.9	103.3	96.1	105.0	97.3	95.2	93.6
190	T12S/R18E/S31-J1	81.9	87.9	92.8	96.7	100.1	92.0	101.7	96.8	96.6	89.4
209	T12S/R20E/S18-N1	142.3	164.2	174.2	178.9	180.8	170.1	182.7	177.5	179.6	183.0

[1]Measurements as reported in Madera Irrigation District - Semiannual Groundwater Report, Fall 1998.



WELLS USED FOR GROUNDWATER MONITORING

MADERA IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

M5010101

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FIGURE 2-3

Section 3
Groundwater Basin Conditions

3.1 Characteristics

The groundwater basin underlying the District is known as the Madera Groundwater Basin. The Madera Groundwater Basin also underlies several small water districts and a majority of land in the county that is not within any organized district. Figure 3-1 shows the approximate boundary of the Madera Groundwater Basin. The Lines of Equal Elevation Maps (Figure 3-2), published by the Department of Water Resources, indicate that the flow of the groundwater within the basin is in a southwest direction. However, the flow direction can be influenced on the local level, depending on how much water is being extracted from the aquifer. Heavy localized pumping can cause depressions in the groundwater table.

3.2 Geological Description

Groundwater within the Madera Irrigation District and throughout the San Joaquin Valley Basin occurs under unconfined and confined conditions. Much of the District is underlain by the Corcoran clay, which separates the groundwater into two zones—an upper, unconfined aquifer and a lower, confined aquifer.

An unconfined aquifer is an aquifer in which the groundwater is not under pressure. In the area underlain by the Corcoran clay, the top of the clay layer is the base of the aquifer. To the west and above the Corcoran clay the top of the unconfined aquifer is the water table. The unconfined aquifer has areas which are locally confined by clay layers that are not continuous over long distances. These clay areas are referred to as isolated clay lenses. Groundwater in the unconfined aquifer flows south and west toward the San Joaquin and Fresno Rivers as discussed in Section 3.1.

A confined aquifer is an aquifer in which the groundwater is contained under pressure. The extent of the confined aquifer is limited to the extent of the Corcoran clay. The top of the confined aquifer is the bottom of the Corcoran clay layer. There is limited information available about the confined aquifer because so few wells extract groundwater from the confined aquifer.

The thickness of the Corcoran clay layer varies throughout the District but ranges between 0 and approximately 50 feet. The depth to the top of the Corcoran clay layer and ground level varies between 300 and 450 feet.

3.3 Water Level Changes (Mapping)

As mentioned in Section 2.10, the District semiannually monitors an average of 229 wells located throughout the District for water depth levels. This information enables the District to monitor

MADERA GROUNDWATER BASIN BOUNDARY

SCALE 1" = ±4 MILES

MADERA GROUNDWATER BASIN BOUNDARY

MADERA IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

M5010101

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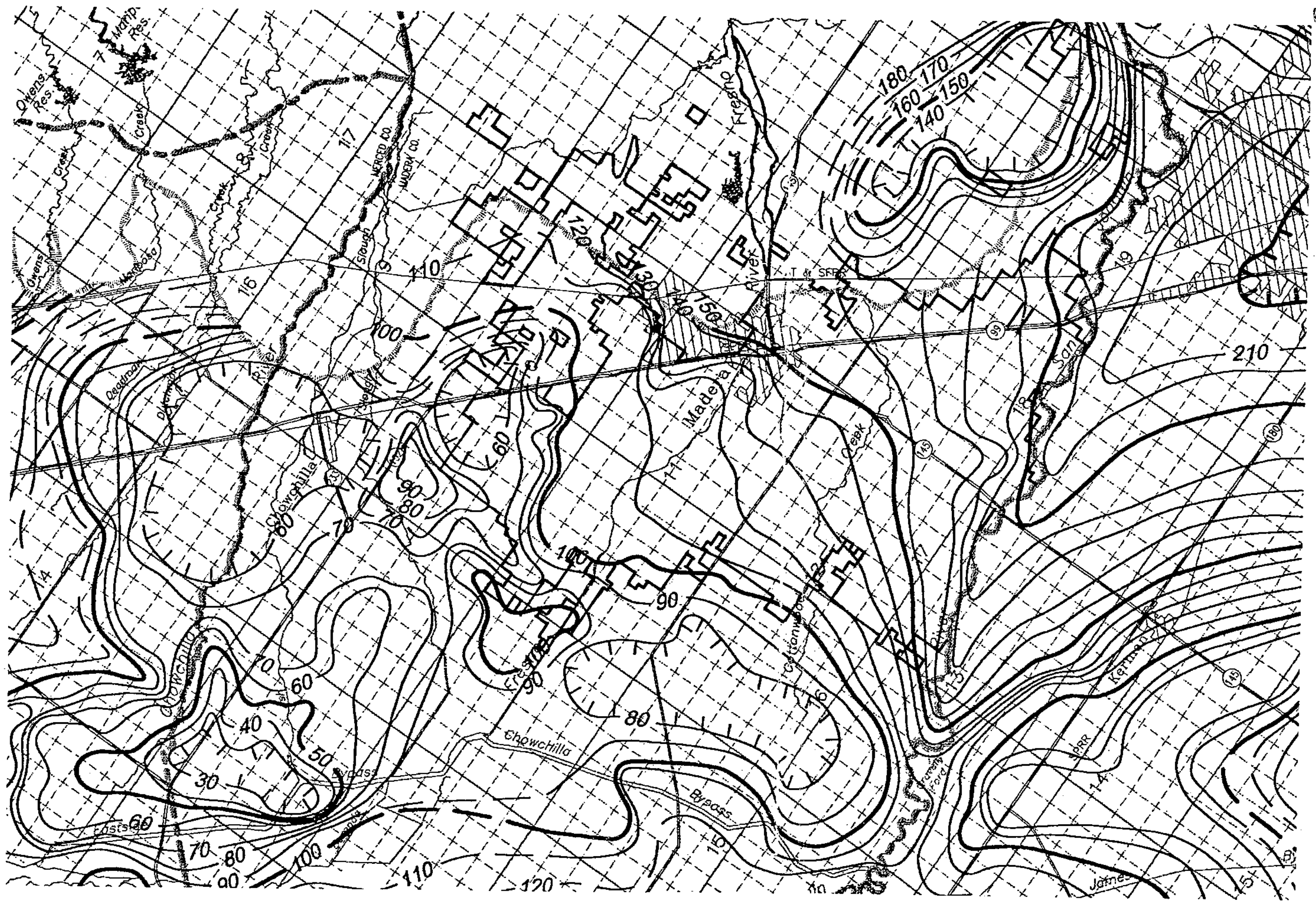
FIGURE 3-1

FLOW DIRECTION



Source: State of California, The Resource Agency
Dept. of Water Resources, San Joaquin District

SCALE 1" = ±4 MILES

LINES OF EQUAL ELEVATION

SPRING 1997

MADERA IRRIGATION DISTRICT
GROUNDWATER MANAGEMENT PLAN

groundwater trends and estimate District-wide pumped groundwater quantities. Following the measurements, the District produces a semiannual groundwater report that identifies the conditions of the groundwater basin the past six months.

The Spring 1998 Groundwater Report showed a collective recovery of water in the basin and in adjacent lands. The annual recovery, to a large measure, can be attributed to the immediate past three years' abundant precipitation, San Joaquin River watershed yield, and the corresponding availability of surface water supply. The surface water resource significantly decreases agricultural demands for extraction from the groundwater basin to satisfy consumptive crop uses. However, the basin continues to be in an overdraft state, which resulted from the droughts between 1987 and 1992 and between 1976 and 1977. In addition, the high cost of surface water compared to groundwater pumping costs have resulted in greater groundwater use than might be expected. In certain areas, the basin groundwater level is on average 40 feet, with a maximum of 100 feet below the measured levels preceding the drought years.

The weighted data for spring 1998 reflects an annual recovery in static water levels of 0.47 feet. This data reflects a two-year increase in groundwater levels of 1.23 feet, or a basin recovery of 18,600 acre-feet for the two-year period. Of the 229 measured wells, 176 reflected elevated static levels from common data of 1997. The well level changes range from a recovery of 14.8 feet to a maximum decline of 11.0 feet.

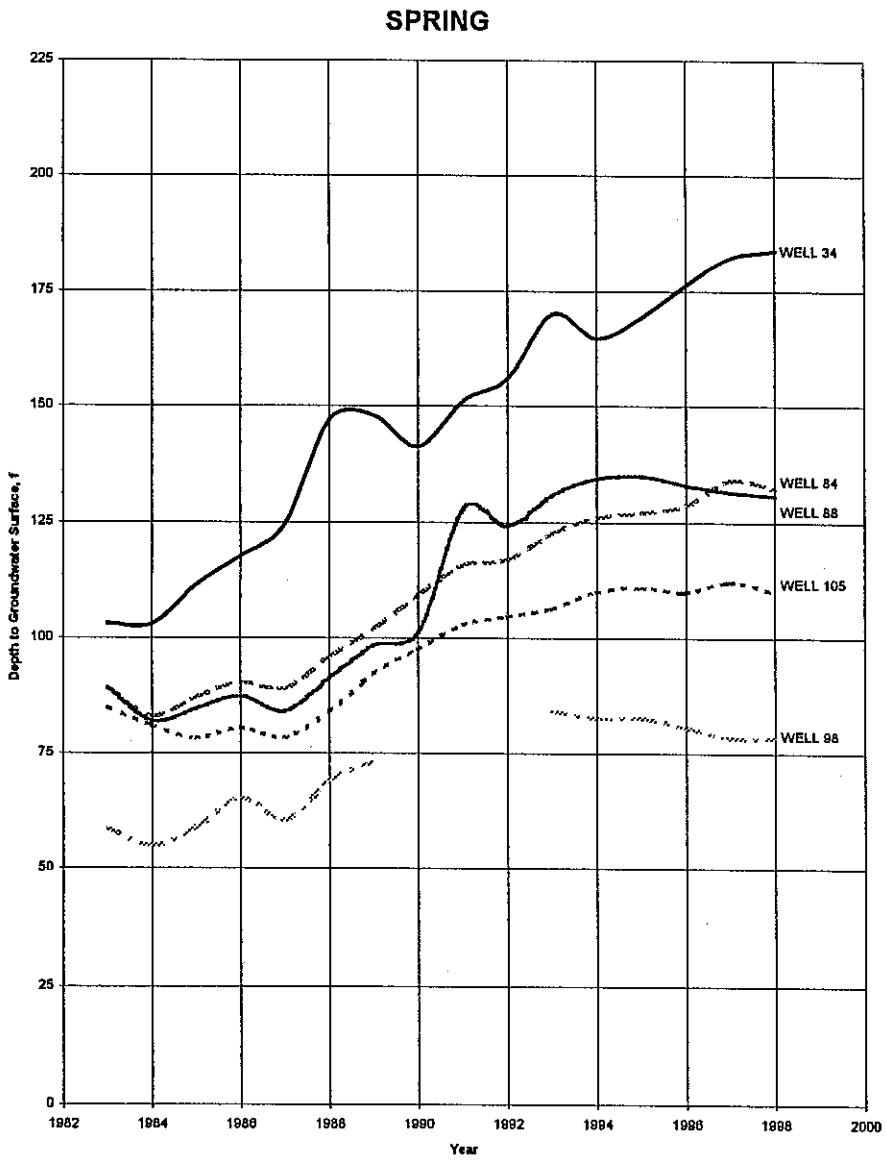
Each year, the Department of Water Resources produces a map entitled *Lines of Equal Elevation in Static Water Level*. This identifies areas of depth to groundwater that are the same. In general, the areas surrounding the city of Madera have experienced a decline in the elevation of the groundwater. This can be attributed to the urban development within and surrounding the city of Madera. Five wells within and surrounding the city of Madera were selected to be representative of the conditions of the groundwater basin within the city. Figure 3-3 shows the variation in the depth to groundwater of these five wells for both the spring and fall seasons. The graph demonstrates the fluctuations in the groundwater table from 1992. Figure 3-4 shows the projected groundwater elevations for the five wells. Urban growth continues to have a negative impact on the groundwater basin that underlies the city of Madera.

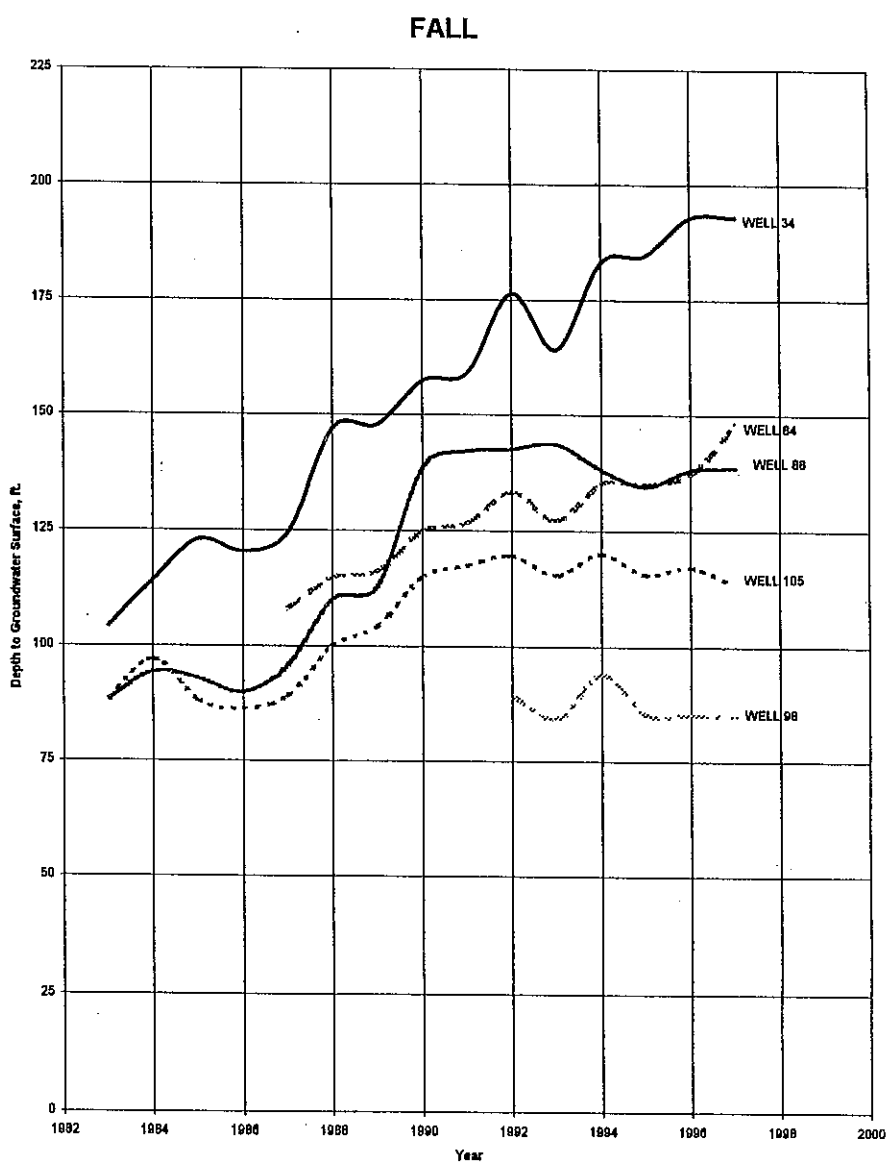
In contrast, the areas near the San Joaquin River and the Fresno River fluctuate depending on weather patterns. In recent years, the groundwater elevation in these areas has significantly increased. Figure 3-5 shows the spring and fall depth to groundwater from 1992 to present, and Figure 3-6 shows the projected groundwater elevations for the five wells. These five wells were selected to be a representative sample for the areas of the basin that lie near the perimeter of the District boundary. In comparing the depth to groundwater for wells near the city of Madera and the depth for wells along the San Joaquin River, it is apparent that the basin underlying the city is in a much more serious state of overdraft.

3.4 Areas of Concern

The primary concern of the District is the continuous decline in the elevation of the groundwater that is a result of urban growth within the District. A related concern is the increase in the cost of surface water

Figure 3-3
Madera Irrigation District
Groundwater Management Plan
Depth to Groundwater Surface of Representative Wells Near City vs. Year[1]





[1]Source of Data: MID Groundwater Survey Data Base

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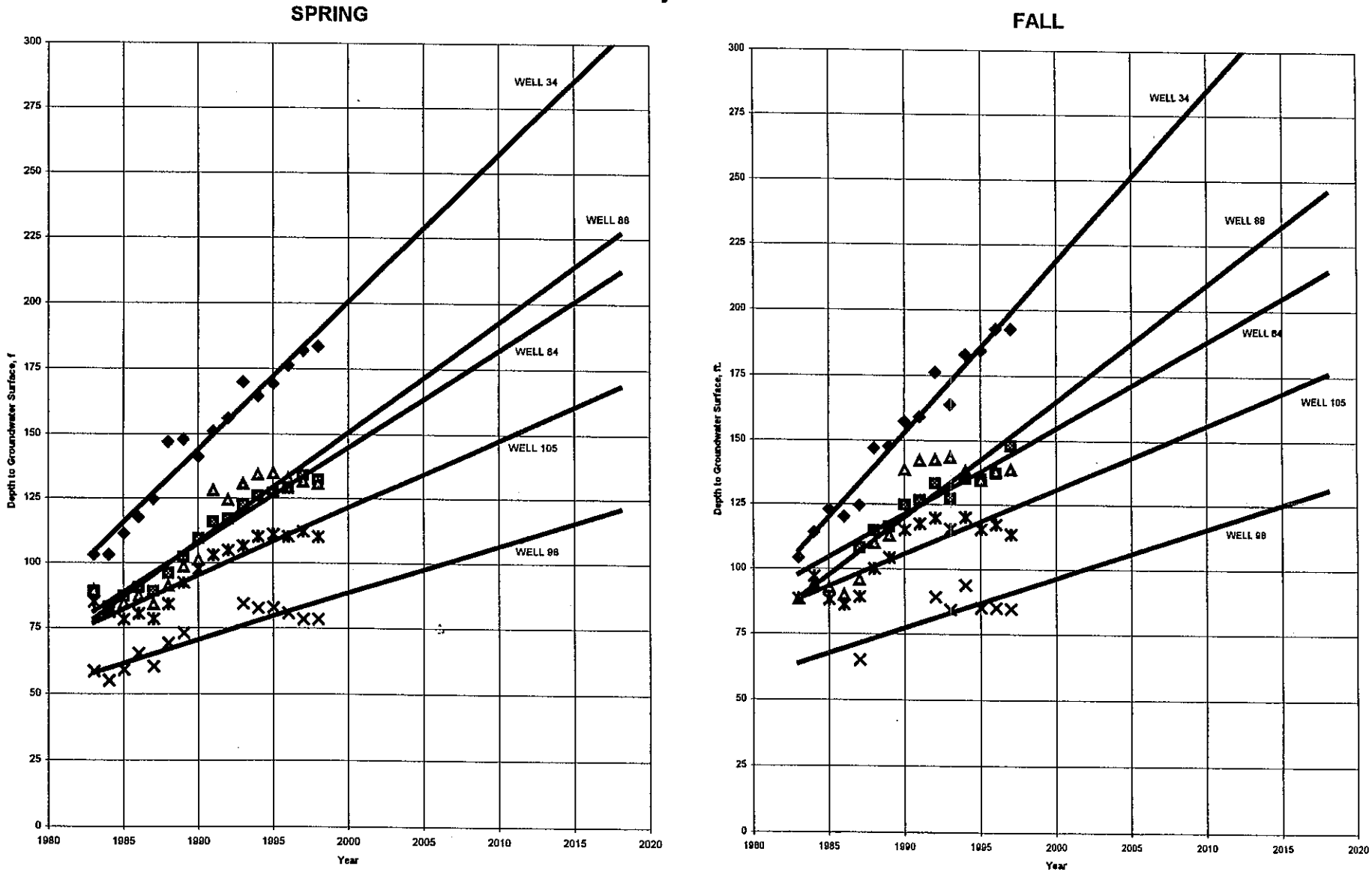
Figure 3-4
Madera Irrigation District
Groundwater Management Plan
Depth to Groundwater Surface of Representative Wells Near City vs. Year[1]
Projections



[1]Source of Data: MID Groundwater Survey Data Base

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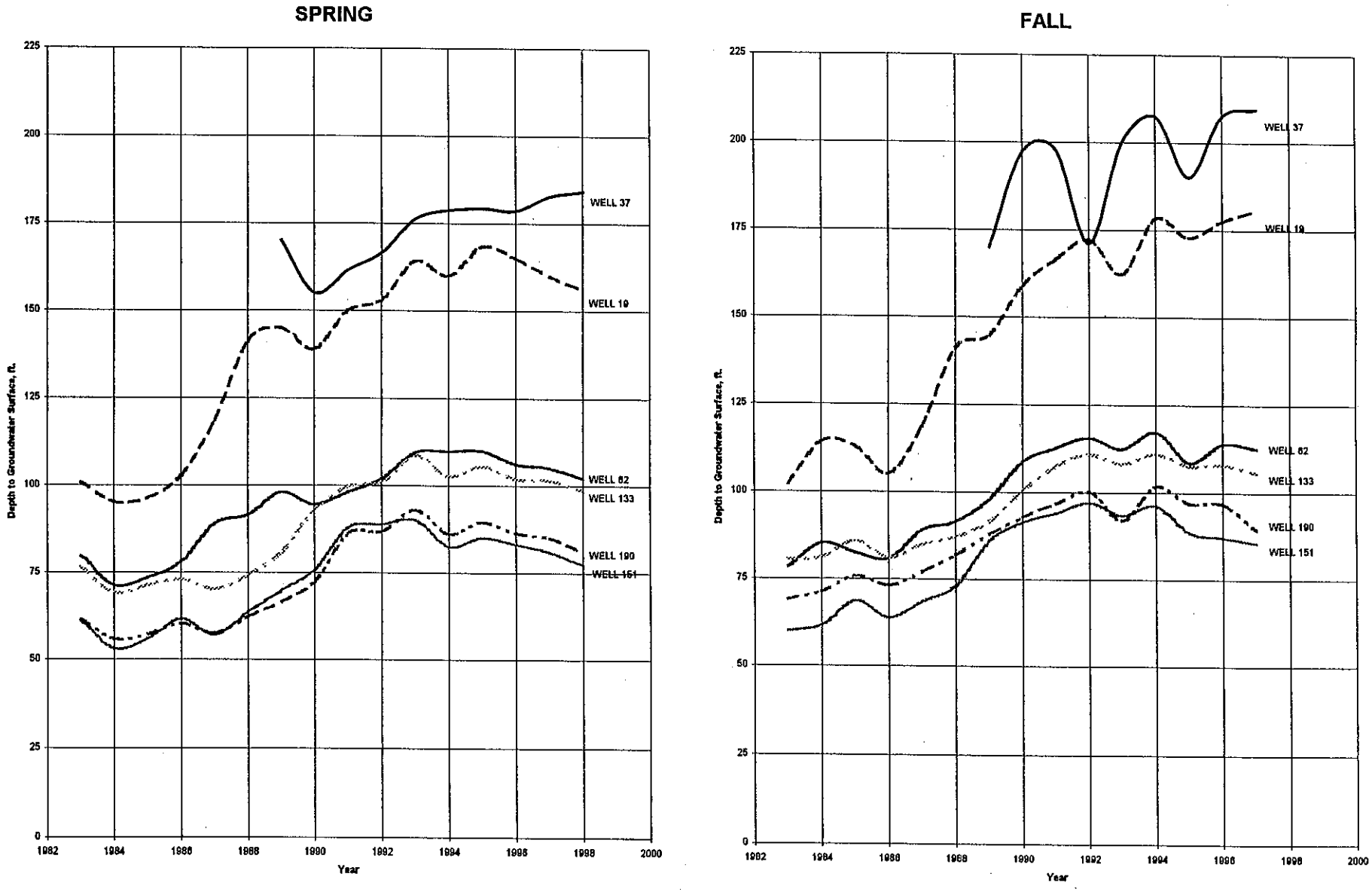
Figure 3-5
Madera Irrigation District
Groundwater Management Plan
Depth to Groundwater Surface of Representative Wells Near Perimeter of District vs. Year[1]



[1]Source of Data: MID Groundwater Survey Data Base

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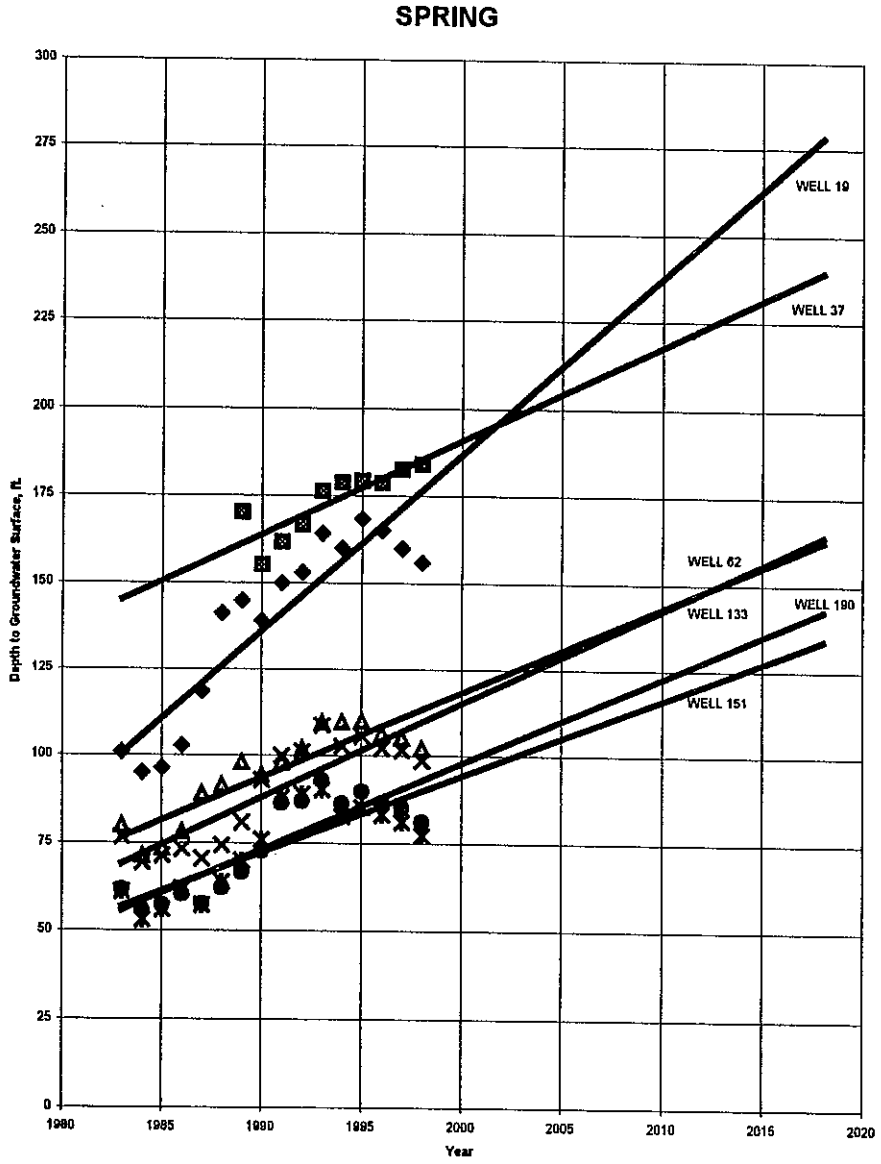
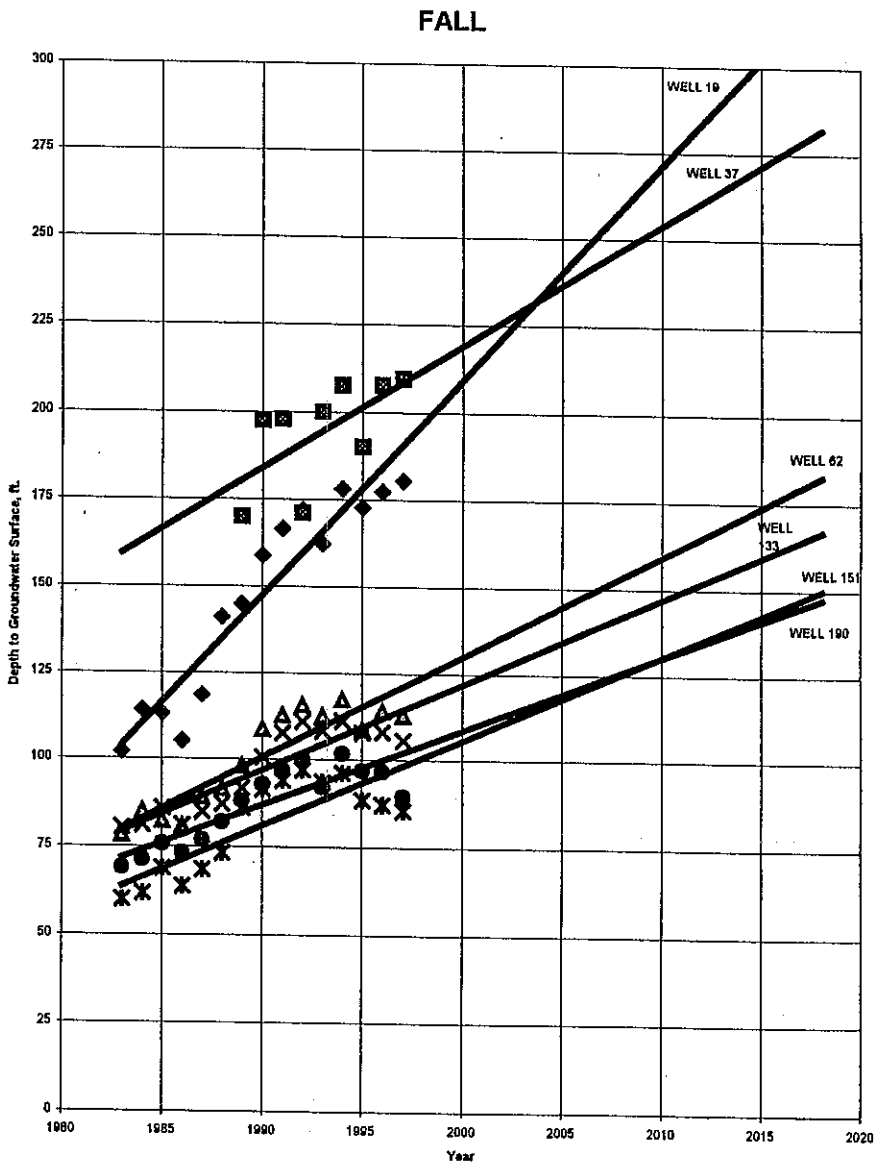
Figure 3-6
Madera Irrigation District
Groundwater Management Plan
Depth to Groundwater Surface of Representative Wells Near Perimeter of District vs. Year[1]
Projections





[1]Source of Data: MID Groundwater Survey Data Base

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fig3-4,3-6.xls

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supplied to the District's users. In addition, some of the increased cost in surface water can be attributed to urban growth and the use of groundwater in areas that no longer contribute to recharge.

Agricultural and municipal agencies within the basin are concerned about maintaining adequate supplies of groundwater within the basin. Groundwater is the primary source of water for municipal and agricultural users in the basin. Many agencies like the District are concerned about the continued decline of groundwater levels. The municipalities are especially concerned about the supplies needed to meet the demand as their urban area continues to expand.

An equally important concern that many agencies have expressed is the quality of the groundwater. Currently, the groundwater basin has relatively good quality as discussed in Section 2.9. The concern is in maintaining the quality of groundwater. These items, such as saline intrusion and well construction, are addressed in Section 4 of this GMP.

Section 4
Plan Items

4.1 General

A successful GMP identifies items that may at some time affect the quality of the groundwater basin. Items should be identified despite whether the item is currently a problem. In addition, it is important for all districts and jurisdictions that control areas within the Madera Groundwater Basin to coordinate efforts to protect the basin. The following sections outline several plan items that should be considered when evaluating the condition of the basin.

4.2 Control of Saline Water Intrusion

Permanent degradation of good quality groundwater can occur if poor quality groundwater migrates into aquifer zones containing better quality water. Any degradation in the water quality can seriously affect the usability of the groundwater for various uses. Wide variations in the quality of groundwater, especially in the upper water-bearing zones of the aquifer, can result from soil conditions, soil types, geologic structure, irrigation practices, and irrigation water quality. Increased groundwater pumping can alter historical flow patterns and cause poor quality groundwater to mix with and contaminate the better quality groundwater.

Currently, saline groundwater intrusion is not a problem with the Madera Groundwater Basin. Therefore, the initial focus will be on monitoring the quality of the groundwater. If water quality changes occur, the cause will be investigated by the Regional Water Quality Control Board, and remedial action will be taken by the responsible party under the regulatory direction of the Regional Water Quality Control Board.

4.3 Identification and Management of Wellhead Protection Areas and Recharge Areas

The Federal Wellhead Protection Program (WPP) was established by Section 1428 of the Safe Drinking Water Act Amendments of 1986 and is designed to protect groundwater resources of public drinking water from contamination. This will minimize the need for costly treatment to meet drinking water standards. A wellhead protection area (WPA), as defined by the 1986 Amendments, is *the surface and subsurface area surrounding a water well or wellfield supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water or wellfield.* The basic task of wellhead and recharge area protection is the identification of zones around public water supply wells and groundwater recharge areas where land use must be controlled to minimize the possibility of contamination of the drinking water supply.

Madera Irrigation District does not provide public drinking water to its users. Therefore, WPAs are not currently applicable to this plan.

4.4 Responsibility for the Mitigation of Contaminated Groundwater

Groundwater contamination can originate from many sources or activities. Generally, once the groundwater table becomes contaminated, the cleanup of the contaminant is very complex and expensive. There are several agencies that play a role in mitigating groundwater contamination. Among them is the California Regional Water Quality Control Board (RWQCB), the California Department of Toxic Substances Control (DTSC), and the U.S. Environmental Protection Agency (EPA). Each agency has its own regulatory authorities and expertise to contribute to the mitigation and the degree to which each agency participant is dependent upon the nature of the problem. The primary role of the Madera Irrigation District is to report any contamination that they become aware of to the proper regulatory agency.

4.5 Administration of a Well Abandonment and Well Destruction Program

State regulations require that all unused or inactive wells be properly maintained as defined by the *Water Well Standards: State of California DWR Bulletins 74-871 and 74-90.* State regulations also require all inactive wells that are not being properly maintained to be properly destroyed. Improperly maintained wells act as a means for mixing of groundwater of different quality. Wells that are unpumped create a much greater threat than those wells that are periodically pumped. This is due in part to the fact that pumping will normally remove contaminants that may have migrated during idle periods.

Madera County has a similar ordinance regarding well destruction. The enforcement of this ordinance will remain in the control of Madera County.

4.6 Mitigation of Overdraft Conditions

Groundwater overdraft can lead to a variety of problems that include land subsidence and an increase in the cost of pumping. Overlooking overdraft can result in a limited supply of water during drought years, which would severely impact the long-term viability of the District, which is predominantly agriculture. Groundwater overdraft is due to an imbalance in the rates of extraction and replenishment. Several methods will help in the correction of overdraft. These methods are as follows:

- A decrease in the amount of extraction to match the rate of replenishment
- Increase in the replenishment to match or exceed the extraction
- Balance replenishment and extraction of the groundwater

Currently, the District is defined as being in a condition of overdraft, which is apparent from the observed decline in the depth to groundwater. Factors that affect the future rate of overdraft include the following:

- The future water demand within and adjacent to the District
- Future pumping rates within and adjacent to the District

Several mitigative measures can be taken to limit the overdraft problems. One such measure is for the District to increase the number of recharge areas maintained by the District. The District will actively pursue the acquisition of land that will be designated as groundwater recharge basins. In addition, the District will continue to support unlined canals and natural streams, such as the Fresno River, the channel under Fanchi weir, and Cottonwood Creek, as a means of conveying large amounts of surface water to the growers.

Another mitigative measure is to increase and modify the irrigation practices and efficiencies. This may be the most practical way to manage the District's groundwater extractions. This will reduce water use with minimal impacts to land use and the significant economic impacts are less likely to result from this approach. The efficiency of irrigation systems can vary significantly based on physical site conditions, climate, method of irrigation, irrigation system design, and management. There are several steps that can be taken that will result in a higher irrigation efficiency. These steps generally fall into two categories. These are:

- Installation/retrofitting of existing systems with improved equipment/technology and/or installing new systems using technology on existing or proposed future plantings.

- Implementing improved irrigation water management procedures of existing irrigation systems.

Several items will be actively supported by the District in an attempt to increase the irrigation efficiency. These items are listed below.

- Installation of flow meters will provide useful information needed to determining irrigation efficiency.

- Modification of the irrigation frequency and the duration will also help. During irrigation it is important to consider both the soil moisture conditions and the drop water requirements. The correct time to stop irrigation is when the soil reservoir has been filled and the water requirement for the crops has been satisfied.

- Improve the application uniformity used during irrigation. Irrigation systems will be designed to best utilize the available water and minimize the amount of water lost to runoff.

Another mitigative measure to correct the overdraft problem is to import additional surface water supply. The District will actively seek to make its sources of surface water more available. They will coordinate with surrounding districts and regulatory agencies in an attempt to acquire additional surface water supply. The more dependable surface water is, the less dependent the farmer will be to the groundwater.

In addition to acquiring additional surface water supply, the District will explore alternatives to be able to offer the growers economic incentives to use less groundwater. Again, the District will work with

local regulatory agencies in an attempt to be able to provide adequate surface water at an economically feasible cost.

4.7 Replenishment of Groundwater Levels and Storage

The District currently achieves groundwater replenishment using several different methods, including the following:

- The District currently has eight designated recharge basins, as shown on Figure 1-1, that are used to replenish the water levels within the District.
- There are currently 90 miles of unlined canals within the District's distribution/conveyance system. In addition, there are 102 miles of natural streams. Both the unlined canals and natural streams convey a large amount of water. A percentage of this water percolates and reaches the groundwater table.
- A percentage of the water applied to the fields of irrigation will percolate and reach the groundwater table.

To increase the replenishment of the groundwater table, additional surface water must be absorbed within the basin either by increasing surface water irrigation or by direct recharge areas. This will be accomplished by the District actively pursuing additional land designated for groundwater recharge. In addition, the District will encourage farmers to use surface water instead of groundwater. This is accomplished by investigating pricing mechanisms that will give the farmer an economic incentive to use the surface water when available.

The District currently monitors well water levels in about 229 wells located throughout the District. These measurements are taken once in the spring and once in the fall and are reported to the Bureau of Reclamation, as discussed in Section 2.10. The purpose of this water level monitoring is to identify areas of overdraft and provide information that will allow computation of the changes in groundwater quality and storage.

4.8 Monitoring of Groundwater Extracted by Water Producers

Monitoring the groundwater extracted by the water producers is best accomplished by placing flow meters on all the irrigation wells used to pump groundwater to the surface for irrigation. The District will recommend to landowners that an adequate flow meter be placed on their irrigation wells. The flow meter totalizer will indicate the total amount of water that was pumped. Growers will know their water use and can use this information for on-farm water conservation. In addition, the District will encourage the landowners to make this information available to the District. The District will implement this monitoring program as part of this GMP.

4.9 Facilitating Conjunctive Use Operations

Conjunctive use operation of a groundwater basin is defined in DWR Bulletin 118-80 as:

> *Operation of a groundwater basin in coordination with a surface water reservoir system. The basin is intentionally recharged in years of above average precipitation so groundwater can be extracted in years of below average precipitation when surface water supplies are below normal.*

In some years, the surface water supply is greater than the basin water demand; in other years. The surface water supply is less than the basin water demand. In wet years, surface water is used to recharge the groundwater basin with recharge being achieved either directly by surface recharge or by using surface water instead of groundwater whenever possible.

The District is in a conjunctive use program with the Bureau of Reclamation. Both agencies will work together to achieve the goals of this GMP.

4.10 Identification of Well Construction Policies

Improperly constructed wells serve as a primary means for contaminating the groundwater. Contaminated groundwater results from the mixing of water between aquifers with differing quality. Madera County has enacted and is responsible for enforcing the County Well Ordinance that regulates well construction. When a new well is drilled, a well construction permit is required, and a well driller's report must be filed with the Department of Water Resources and the County. This will ensure proper construction of wells within the District.

4.11 Construction and Operation of Groundwater Management Facilities

The District will actively pursue additional lands to be used as recharge facilities. Where possible, recharge activities will be coordinated with flood control activities. Following acquisition of land, the District would construct recharge basins that would maximize the amount of recharge of the groundwater table. These facilities would be located in areas where extraction can occur in times of limited surface supply. Such extraction would be conducted in a manner that allows incorporation of groundwater into District distribution facilities and only to the extent that there are no unreasonable adverse impacts on landowners and growers in the District. Trained District personnel will operate the facilities.

4.12 Development of Relationships with Federal, State, and Local Regulatory Agencies

Relationships between the groundwater management districts and the various regulatory agencies is an important part of an effective plan. The plan will be submitted to the Department of Water Resources

and the RWQCB. Groundwater management activities will be coordinated with these regulatory agencies and the agencies that also are a part of the Madera Groundwater Basin.

4.13 Review of Land Use Plans and Coordination with Land Use Planning Agencies

An important components of developing a groundwater management plan is the review of land use plans for the surrounding area or basin and coordinating efforts with regional and local land use planning agencies. Urbanization has a significant impact on groundwater management. It is important to plan for the impacts a developing area can have on the groundwater basin by compensating in other areas within the District. Compensation can be in a variety of forms, including adding recharge basins, importing additional surface water supplies, and limiting pumping within the developed area. Within developing areas, recharge basins should be planned for prior to development. Madera Irrigation District will work closely with Madera County and the City of Madera in evaluating land use plans to ensure the groundwater table is protected.

SECTION 5: GROUNDWATER EXPORTATION, GROUNDWATER BANKING, IMPORTATION OF FOREIGN WATER, AND USE OF DISTRICT FACILITIES FOR SUCH PURPOSES

Chapter .100
Rules and Regulations Pertaining to Groundwater Banking; Importation of Foreign Water For the Purpose of Groundwater Banking; Exportation of Groundwater Outside the District; and Use of District Facilities for such Purposes.

.100.010 PURPOSE AND INTENT.

A. The lands within Madera Irrigation District ("District") are heavily dependent upon groundwater. The groundwater basin(s) underlying the District and surrounding areas are severely overdrafted.

B. It is essential to the continued prosperity of the landowners and water users within the District that the quality and quantity of the groundwater supply be maintained to meet the demands of District landowners and water users.

C. Areas within the District are or could be or become subject to land subsidence due to the extraction of groundwater.

D. The direct or indirect transfer of groundwater outside the District may have significant environmental impacts on the area within the District including, but not limited to, increased groundwater overdraft; land subsidence; uncontrolled movement of contaminated groundwater; uncontrolled movement of poor quality or contaminated groundwater; the lowering of groundwater levels; increased groundwater or soil degradation; and loss of aquifer capacity due to land subsidence.

E. The direct or indirect transfer of groundwater outside the District may have significant economic impacts on areas within the District including, but not limited to, loss of arable agricultural land; increased pumping costs due to lowered groundwater levels; increased groundwater quality treatment costs due to movement of contaminated or poor quality groundwater; replacement of wells due to declining groundwater levels, and replacement of damaged wells, conveyance facilities, roads, bridges and other structures due to land subsidence.

F. The importation of water originating outside of Madera County (whether or not conveyed through or pooled with facilities located in or adjacent to Madera County) for the purpose of Groundwater Banking such water ("Foreign Water") could, if unregulated, introduce water of an inferior quality into District aquifers, resulting in significant economic and environmental impacts on areas within the District, including, but not limited to, those specified in Paragraphs D. and E., above .

G. As used herein the term "Groundwater Banking" means the percolation, injection, or other recharge of a supply of water for the purpose of later extraction and delivery of such water outside of the District. Groundwater Banking can be reasonable and beneficial if it can be accomplished without:

(1) causing or increasing an overdraft of groundwater underlying the District;

(2) adversely affecting the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District (for example by utilizing storage that might otherwise be subject to natural or passive recharge and thus depriving other groundwater users of their use of the aquifer and the groundwater derived therefrom) ;

(3) adversely affecting the reasonable and beneficial uses of groundwater by other groundwater users within the District;

(4) resulting in, expanding, or exacerbating degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District;

(5) resulting in injury to a water replenishment, storage, restoration, or conveyance project or facility;

(6) adversely affecting the surface or subsurface of neighboring or nearby lands, or the trees, vines, or crops growing or to be grown thereon;

(7) adversely affecting the economy or environment of the area within the District; or

(8) adversely affecting the recharge and storage ability on adjacent lands where passive recharge may take place.

H. For Groundwater Banking projects all or a portion of which will be located within the District, it is essential that the District be the agency that determines whether a permit should be issued to allow groundwater banking, exportation of groundwater, or importation of foreign water, within such areas. Without a permit process which allows public notice, public hearings, and compliance with environmental and other appropriate requirements, there would be no or inadequate local control over such groundwater banking, exportation of groundwater, or importation of foreign water, nor a method to insure that groundwater banking will meet the requirements of Paragraph G., above.

I. The District, as the agency most familiar with local conditions affecting groundwater, should adopt reasonable regulatory measures in relation to exportation of groundwater, Groundwater Banking, and the importation of Foreign Water for the purpose of Groundwater Banking.

J. California Water Code section 1810(d) provides that use of a water conveyance facility to transfer water may be denied if the use of the water conveyance facility will injure any legal user of water, will unreasonably affect fish, wildlife or other in-stream beneficial uses, or will unreasonably affect the overall economy or the environment of the county from which the water is being transferred.

__.100.020 TITLE.

These provisions shall be known as "Rules and Regulations Pertaining to Groundwater Banking; Importation of Foreign Water For the Purpose of Groundwater Banking; Exportation of Groundwater Outside the District; and Use of District Facilities for such Purposes."

__.100.030 DEFINITIONS

The terms used in this Chapter have the following meanings, unless otherwise expressly provided:

A. "Damage Prevention Plan" means a written plan which specifically details the problems that may occur as a result of the operation of the project and details what actions will be

taken by the Applicant to mitigate or eliminate the problems in order to prevent damage to the site and surrounding properties.

B. "Emergency Action Plan" means a written plan which provides a complete and detailed evaluation of potential project failures that can occur during operation of the project and which details what actions the Applicant will take to prevent or minimize damage to the project and protect the public and surrounding properties.

C. "Exportation of Groundwater" means the extraction of groundwater from any well within the boundaries of the County and located on or under lands subject to this Chapter and used on lands which are outside of the boundaries of the County, unless the lands on which the water is being used are contiguous to the lands where the water is extracted, and are owned by the same landowner.

D. "Foreign Water" means water originating outside of Madera County, whether or not conveyed through or pooled with facilities located in or adjacent to Madera County, which is imported into Madera County for purposes of groundwater banking.

E "Groundwater" means water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated.

F. "Groundwater Banking" means the importation of a surface supply of water that is percolated or injected to groundwater for storage, or placed underground by means of in-lieu recharge, for later extraction and delivery.

G. "Groundwater Management Plan" means a groundwater management plan adopted pursuant to California Water Code section 10750 et seq.

H. "Local water agencies" means public agencies, districts, or mutual water companies located wholly or partly within Madera County which have as their primary function the supplying of water for domestic, agricultural, industrial, or municipal purposes.

I. "Operations and Maintenance Plan" means a written plan which provides complete details of how the Applicant plans to

operate and maintain the project after construction is completed. This Plan must show who will assume the responsibility for the operation and maintenance of the project and provide an organizational chart detailing the job responsibilities of each position shown.

J. "Person" means an individual, partnership, company, corporation, unincorporated association, public agency, or other form of business entity.

K. "Project Monitoring Plan" means a written plan which details how the Applicant will monitor the project site and properties outside of the project boundaries for possible damage from operation of the project.

L. "Project Water Measurement and Water Loss Accountability Plan" means a written plan which details how water into and out of the project will be measured and how the Applicant plans to calculate or otherwise account for project water losses. The Plan must provide details of what types of measuring equipment will be used on the project and where it will be installed.

M. "Safety Action Plan" means a written plan which provides information on who will be responsible for implementing the safety requirements for the project and which also provides details of all project safety requirements, including those needed to protect the public and surrounding properties.

__.100.040 LAND SUBJECT TO ARTICLE.

This Chapter shall be applicable to all lands within the District boundaries. If a portion of a Groundwater Banking project lies within the District, and a portion lies outside the boundaries of the District, then this Chapter shall apply to that portion that lies within the boundaries of the District.

__.100.050 EXPORTATION OF GROUNDWATER BEYOND DISTRICT BOUNDARIES.

A. REQUIREMENT OF PERMIT:

Except under a permit granted pursuant to this Section, no groundwater extracted from any well within the boundaries of the District and located on or under lands subject to this Chapter, shall be used on lands which are outside of the boundaries of the District, unless the lands on which the water

is being used are contiguous to the lands where the water is extracted, and are owned by the same landowner. A permit is required under this Section whether or not such exportation is pursuant to Groundwater Banking that is also subject to a separate permit under Section __.100.060. A permit for exportation under this Section may cover all exportation of water to a specified water user in amounts specified in the permit for a period not to exceed five years from the granting of the permit, after which a new permit shall be required.

B. APPLICATION FOR PERMIT:

Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The source of the water to be exported.

b. The quantity and quality of water proposed to be exported.

c. The location to which and purpose for which the water is to be exported, including the reasonable and beneficial use to which the water is to be put.

d. The geologic and hydrologic properties of the aquifers from which extraction will be made, including possibilities or likelihood of subsidence problems.

e. Percolation tests to determine the ability of the aquifer(s) to recharge.

f. Clay layers and their effect on percolation.

g. The applicant's Project Water Measurement and Water Loss Accountability Plan.

h. The applicant's Damage Prevention Plan.

i. The applicant's Project Monitoring Plan.

j. The applicant's Safety Action Plan.

k. The applicant's Emergency Action Plan.

l. The location, size, spacing and depths of extraction wells.

m. Horizontal migration of groundwater from surrounding locations.

n. The means and criteria for determining any effects on surrounding lands and their groundwater supplies.

o. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:
An Application for extraction permit under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional geologic or hydrologic studies, or other information or studies, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable local, state and federal agencies and with, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.

After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:

The permit may only be approved if the District finds that the proposed extraction and exportation will not have detrimental impacts on the District by determining that:

(1) The extraction and exportation will not cause or increase an overdraft on parts or all of the groundwater basins underlying the District.

(2) The extraction and exportation will not adversely affect the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District.

(3) The extraction and exportation will not adversely effect the reasonable and beneficial uses of groundwater by other groundwater users within the District.

(4) The extraction and exportation will not result in, expand, or exacerbate degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District.

(5) The extraction and exportation will not result in injury to a water replenishment, storage, restoration, or conveyance project or facility;

(6) The extraction and exportation will not adversely affect the overall economy or environment of the area within the District.

If the Board determines that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within five miles of the exterior boundaries of the proposed extraction site, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. The District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and 6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, the location from which the water is proposed to be extracted and exported, and a general description of the project and that any interested person may submit evidence at the hearing. At least fifteen days must

elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity of the groundwater supply, adjacent or neighboring lands, or the environment.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the project site and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

representatives, at any reasonable time, and from time to time, to enter the project site and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to California Code of Civil Procedure Section 1094.5 and within the time limits prescribed in California Code of Civil Procedure section 1094.6.

__.100.060 GROUNDWATER BANKING.

A. REQUIREMENT OF PERMIT:
No person, who is subject to this Ordinance, other than the District, shall engage in Groundwater Banking on or under land subject to this Ordinance without first obtaining a permit from the District in accordance with this Section. A permit for Groundwater Banking under this Section may cover all Groundwater Banking for amounts of storage specified in the permit for a period not to exceed five years from the granting of the permit, after which a new permit shall be required. A permit for Groundwater Banking is not a permit for importation of Foreign Water to the Groundwater Bank (which importation shall require a separate permit under Section __.100.070), and it is not a permit for exportation of groundwater beyond District boundaries (which exportation shall require a separate permit under Section __.100.050).

B. APPLICATION FOR PERMIT:
Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The location, plans, and specifications of the proposed project.

c. The method of placement of water to be banked

d. The quantities of groundwater to be extracted.

e. The geologic and hydrologic properties of the aquifers into which recharge will occur and from which extraction will be made, including possibilities or likelihood of subsidence problems.

f. Percolation tests to determine the ability of the aquifer(s) to recharge.

g. Clay layers and their effect on percolation.

h. Design of spreading areas.

i. The applicant's Operations and Maintenance Plan.

j. The applicant's Project Water Measurement and Water Loss Accountability Plan.

k. The applicant's Damage Prevention Plan.

l. The applicant's Project Monitoring Plan.

m. The applicant's Safety Action Plan.

n. The applicant's Emergency Action Plan.

o. The location, size, spacing and depths of extraction wells.

p. Horizontal migration of groundwater from surrounding locations.

q. The means and criteria for determining any effects on surrounding lands and their groundwater supplies.

r. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:
An Application for Groundwater Banking under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional geologic or hydrologic studies, or other studies or information, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable local, state and federal agencies, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.
After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:
The permit may only be approved if the District finds that the proposed Groundwater Banking project will not have detrimental impacts on the District by determining that:

(1) The project will not adversely affect the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District (for example by utilizing storage that might otherwise be subject to natural or passive recharge and thus depriving other groundwater users of their use of the aquifer and the groundwater derived therefrom).

(2) The project will not adversely affect the reasonable and beneficial uses of groundwater by other groundwater users within the District.

(3) The project will not result in, expand, or exacerbate degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District.

(4) The project will not result in injury to a water replenishment, storage, restoration, or conveyance project or facility.

(5) The project will not adversely affect the surface or subsurface of neighboring or nearby lands, or the trees, vines, or crops growing or to be grown thereon.

(6) The project will not adversely affect the overall economy or environment of the District.

(7) The project will not cause or increase an overdraft of groundwater underlying the District.

(8) The project will not adversely affect the storage ability on adjacent lands where passive recharge may take place.

If the Board determines that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within the District which are located within five miles of project site, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. the District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and 6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, a general description of the proposed importation and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity of the groundwater supply, adjacent or neighboring lands, or the environment. Since direct or other subsurface injection of water into an aquifer entails an inherent risk of irreparable contamination due to the lack of natural filtering resulting from percolation, the permit shall prohibit the use of direct or other subsurface injection.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the project site(s) and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to California Code of Civil Procedure Section 1094.5 and within the time limits prescribed in California Code of Civil Procedure section 1094.6.

__.100.070 IMPORTATION OF FOREIGN WATER FOR GROUNDWATER BANKING.

A. REQUIREMENT OF PERMIT:
Except under a permit granted pursuant to this Section, no person may import Foreign Water for the purpose of Groundwater Banking within the boundaries of the District and located on or under lands subject to this Chapter. A permit is required under this Section whether or not such importation is pursuant to Groundwater Banking that is also subject to a separate permit under Section __.100.060. A permit for importation under this Section may cover all importation of water from a specified water source (designated by specific location and type) in amounts specified in the permit for a period not to exceed five years from the granting of the permit, after which a new permit shall be required.

B. APPLICATION FOR PERMIT:
Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The source of the water to be imported.

b. The quantity and quality of water proposed to be imported.

c. The manner in which the water is to be conveyed to the Groundwater Banking facility, including the specific location of conveyance facilities, and copies of all permits and agreements showing consent for the use of such conveyance facilities.

d. The proposed method of placement of water to be imported and banked

e. The physical, and where applicable the geologic and hydrologic, properties of the conveyance facilities, including possibilities or likelihood of contamination or degradation problems.

f. The applicant's Project Water Measurement and Water Accountability Plan.

g. The applicant's Damage Prevention Plan.

h. The applicant's Project Monitoring Plan.

i. The applicant's Safety Action Plan.

j. The applicant's Emergency Action Plan.

k. The means and criteria for determining any effects on lands surrounding or neighboring all conveyance facilities and on their groundwater or surface water supplies.

l. The means and criteria for determining any effects on all other water supplies into which the proposed Foreign Water may be commingled while being conveyed, such as in a pool or reservoir.

m. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:

An Application for Foreign Water Importation Permit under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant,

in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional geologic or hydrologic studies, or other studies or information, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable state and federal agencies, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.
After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:
The permit may only be approved if the District finds that the proposed importation of Foreign Water will not have detrimental impacts on the District by determining that:

(1) The importation will not adversely affect the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District.

(2) The importation will not adversely affect the reasonable and beneficial uses of groundwater by other groundwater users within the District.

(3) The importation will not result in, expand, or exacerbate degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District.

(4) The importation will not result in injury to a water replenishment, storage, restoration, or conveyance project or facility.

(5) The project will not adversely affect the surface or subsurface of neighboring or nearby lands, or the trees, vines, or crops growing or to be grown thereon.

(6) The importation will not adversely affect the overall economy or environment of the District.

(7) The existing qualities of the underground aquifers will not be degraded by the importation.

(8) The importation will not adversely affect the storage ability on adjacent lands where passive recharge may take place.

If the Board determine that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within the District which are located within five miles of any conveyance facilities that are within or adjacent to the District, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the project, a

description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. The District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and 6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, a general description of the proposed importation and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity of the groundwater supply, adjacent or neighboring lands, or the environment.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the project site(s) and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to California Code of Civil Procedure Section 1094.5 and within the time limits prescribed in California Code of Civil Procedure section 1094.6.

.100.080 DISTRICT CONVEYANCE FACILITIES:

A. REQUIREMENT OF PERMIT:
In order to avoid injury to any legal user of water, and to avoid unreasonably affecting the overall economy or the environment of Madera county, no person may use any District-owned conveyance facility as a part of, or in connection with, Groundwater Banking for which a permit is required under this Chapter, or the importation of Foreign Water for which a permit is required under this Chapter, or the exportation of groundwater for which a permit is required under this Chapter, except under a permit granted pursuant to this Section. A permit is required under this Section whether or not such use is in connection with groundwater banking, importation of foreign water, or exportation of groundwater for which a separate permit or permits are required under other Sections of this Chapter. A permit for use of a district conveyance facility under this Section may cover all importation of water from a specified water source (designated by specific location and type) in amounts specified in the

permit for a period not to exceed two years from the granting of the permit, after which a new permit shall be required.

B. APPLICATION FOR PERMIT:

Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The source of the water to be conveyed through the conveyance facility.

b. The quantity and quality of water proposed to be conveyed.

c. The manner in which the water is to be delivered to and withdrawn from the District conveyance facility and how the water is to conveyed from its source to the District's conveyance facility.

d. The physical, and where applicable the geologic and hydrologic, properties of the conveyance facilities through which the water will be delivered into the District's conveyance facilities, including possibilities or likelihood of contamination or degradation problems.

e. The applicant's Project Water Measurement and Water Accountability Plan.

f. The applicant's Damage Prevention Plan.

g. The applicant's Project Monitoring Plan.

h. The applicant's Safety Action Plan.

i. The applicant's Emergency Action Plan.

j. The means and criteria for determining any effects on lands within the District and otherwise surrounding or neighboring all conveyance facilities and on their groundwater or surface water supplies.

k. The means and criteria for determining any effects on all other water supplies with which the water proposed to be conveyed may be commingled while being conveyed.

l. The means and criteria for determining any effects of the use of the District conveyance facility on any other legal user of water conveyed or to be conveyed through such facilities.

m. The means and criteria for determining any effects of the use of the District conveyance facility on fish, wildlife, other instream beneficial uses, or the environment within the District and within Madera County.

n. The means and criteria for determining any effects of the use of the District conveyance facility on the economy within the District and within Madera County.

o. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:

An Application for Use of District Conveyance Facility under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:

If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District

Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional physical, geologic or hydrologic studies, or other studies or information, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable state and federal agencies, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.

After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:

The permit may only be approved if the District finds that the proposed use of District conveyance facility will not:

(1) Injure any legal user of water.

(2) Unreasonably affect the delivery of water to any District landowners.

(3) Unreasonably affect fish, wildlife, or other instream beneficial uses.

(4) Unreasonably affect the overall economy of the county from which the water is to be transferred.

(5) Unreasonably affect the environment of the county from which the water is to be transferred.

If the Board determines that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within the District which are located within five miles of any conveyance facilities that are within or adjacent to the District, setting forth the name of the applicant, a description of the applicant's proposal, a description or map of the District facility involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the applicant's proposal, a description or map of the District facility involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. The District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and 6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, a general description of the proposed importation and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects described in Paragraph F, above.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the applicant's site(s) and make such observations and measurements as are deemed necessary to assure that the applicant's proposed use is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to Cal. Code of Civil Procedure Section 1094.5 and within the time limits prescribed in Cal. Code of Civil Procedure section 1094.6.

.100.090 PENALTIES FOR VIOLATION:

These rules and regulations are enacted to secure distribution of water in accordance with determined rights within the District pursuant to California Water Code Section 22085. Supervision and enforcement of these regulations shall be by District watermasters appointed under Water Code Section 22081. The District may elect to proceed with any or all of the following remedies for violation of this Chapter:

(a) A civil action against the violator for damages and/or injunctive relief.

(b) A misdemeanor criminal action against any violator who willfully and without authority closes, changes, or interferes with any headgate, waterbox, or measuring device while it is under the control of the watermaster, or who willfully takes, uses, or conveys water which has been denied him by the watermaster as not allowed under permit or in violation of the provisions of this Ordinance is guilty of a misdemeanor pursuant to Water Code Section 22088. Under Water Code Section 22089.5, a watermaster has the power to arrest any person violating any of the provisions of this article and to give him into the custody of the sheriff or other competent police officer within the county, and immediately thereafter make a complaint before a magistrate against the person so arrested. Every person who violates any of the provisions of this article is guilty of a misdemeanor and is punishable by a fine of not less than twenty-five dollars ($25), nor more than two hundred fifty dollars ($250), or by imprisonment in the county jail for not less than 10 days nor more than six months, or by both such fine and imprisonment pursuant to Water Code Section 22089.

(c) A referral to the Madera County District Attorney for prosecution of a misdemeanor criminal action against any violator without authority of the owner or managing agent, and with intent to defraud, take water from any canal, ditch, flume, or reservoir used for the purpose of holding or conveying is guilty of a misdemeanor under California Penal Code Section 592. If the total retail value of all the water taken is more than

four hundred dollars ($400), or if the defendant has previously been convicted of an offense under Penal Code Section 592 or any former section that would be an offense under Section 592, or of an offense under the laws of another state or of the United States that would have been an offense under this section if committed in this state, then the violation is punishable by imprisonment in the county jail for not more than one year, or in the state prison.

__.100.100 SEVERABILITY:

If any section, subsection, sentence, clause or phrase of this Chapter is for any reason held to be illegal, invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions hereof. The Board hereby declares it would have passed this Chapter and each section, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases are declared illegal, invalid or unconstitutional.

MADERA IRRIGATION DISTRICT
SPECIAL BOARD OF DIRECTORS MEETING
AUGUST 10, 1999

The Special Board of Directors Meeting of the Madera Irrigation District was called to order at 6:00 p.m. by President Pistoresi.

PRESENT: Directors Pistoresi, Bursey, Janzen, Galleano and Teranishi
ABSENT: None

Also Present:
S.H. Ottemoeller, General Manager
D.D. Roberts, Assistant General Manager-Chief Engineer
D. Green, Legal Counsel
C.A. Rascoe, Secretary to the Board

Seated in the audience was Rhonda Cargill, Michelle Lasgoity, Doug Sordi and Larry Howard.

1-0007 The Board moved into Closed Session at 6:05 p.m. for the purpose of discussing potential litigation with Special Counsel Mike Campos pursuant to Government Code 54956.9 and reconvened at 6:55 p.m.

President Pistoresi stated that there was no action taken in Closed Session.

President Pistoresi adjourned the Special Board Meeting and opened the Hearing for the Proposed Groundwater Management Plan.

1-0015 President Pistoresi opened the discussion stating that on October 1, 1997 the Madera Irrigation District Board of Directors passed a Resolution of Intent to prepare a Groundwater Management Plan following the first public hearing pursuant to California Water Code Section 10750 –10755. Now is the time and place of the second public hearing to determine whether or not to adopt a Proposed Ground Water Management Plan. This hearing was duly noticed as required by law and copies of the proposed plan are available for inspection or acquisition.

Any landowner in the District may file a written protest to the adoption of the plan any time prior to the conclusion of this hearing.

A majority protest will exist if landowners representing less than 50% of the assessed value of the land according to the District benefit assessment rules have filed written protest prior to the hearing. At this time no written protest has been file with the District. If a majority protest does not exist, the Board may adopt a plan at a conclusive hearing or subsequent Board Meeting within 35 days of this hearing.

1-0076 GM Ottemoeller started the presentation on the Groundwater Management Plan by going over a few of the background items. The plan is being done pursuant to the AB3030 that was passed in 1992 by the State Legislature. Partially in response to a large majority of the people who were trying to get the State to pass groundwater ordinances, this was done voluntarily by local agencies so they could demonstrate they were being responsible. CVPIA which also passed in 1992 and water conservation requirements by Bureau guidelines require that Districts go through a plan like AB3030. It's very important that the District have a strategic plan for its future decisions. The plan states a number of goals, all of them are consistent with the District's mission which is to obtain and manage affordable service and groundwater supplies to sustain agriculture long-term. Key goals are to assure long-term availability of groundwater, maximize surface water, prohibit the net export groundwater, protect the quality of the supply and prevent unnecessary restrictions on private well use. Due in part to urban growth, the depth to groundwater close to the City clearly is increasing at a higher rate than other parts of the District. The plan describes a number of efforts that the District can and will take, if necessary, to increase recharge areas within the District. The District would look to aquire land for groundwater recharge basins, continue the conveyance of surface water, increase or modify irrigation practices and efficiencies as necessary and encourage the use of flow meters on wells.

GM Ottemoeller addressed the issue of replenishment of ground water levels in storage. The District needs to pursue additional land for groundwater recharge, encourage farmers to use surface water instead of groundwater and also find some kind of economic incentives for a general encouragement to use the service water. Another stated part of the plan is to open relations with local and state agencies, like the City of Madera that will allow joint use of flood controlled basins as recharge basins during the irrigation season. Coordination with City and County on review of land use plans and other planning activities is also helpful.

In regard to groundwater banking and export, terms and conditions may be established by the District as part of a permit and there would be the ability to revoke permits if terms and conditions are violated. Inspection would be allowed as necessary to verify clients of the plan. Finally, the decision of the Board would be final and violations would be considered a misdemeanor.

1-0565 President Pistoresi opened the meeting to the public for comments or questions pertaining to the plan.

Doug Sordi questioned what the elements of the plan are to convey surface water to the canal. President Pistoresi addressed the questions stating that there is an upcoming meeting scheduled for Thursday, September 9th regarding flow control where this topic is to be addressed. GM Ottemoeller will investigate.

Michelle Lasgoity questioned how the District will ensure that the goals of the groundwater management plan are followed.

President Pistoresi stated the District currently has over 200 wells that it monitors. One of the District's goals is to implement a better plan in monitoring groundwater management. President Pistoresi emphasized that the District would look into the possibility of conducting a review once every six months or so in order to monitor this situation.

Larry Howard questioned how the discussions are progressing with the City and its commitments.

GM Ottemoeller responded that meetings have taken place with the City and are in the process of considering a storm drainage plan that includes additional storm basins. The City's plan looks as though it will take care of most of their future drainage and some of the existing storm drainage.

President Pistoresi thanked everyone involved for participating in the discussion and voicing their concerns in helping protect agriculture.

President Pistoresi closed the public hearing portion of the meeting at 7:35 p.m. and adjourned back into regular session.

MOTION **Director Galleano moved to approve Resolution No. 22-99, second by Director Janzen. Motion Carried by unanimous vote.**

Director Galleano read as a matter of record Resolution No. 22-99.

Director Galleano moved to adjourn the meeting at 7:40 p.m., seconded by Director Janzen. Motion carried.

APPROVED FOR THE BOARD:

Ronald H. Pistoresi
President

Cynthia A. Rascoe
Secretary of the Board

Date: Dec. 7, 1999

MADERA IRRIGATION DISTRICT
RESOLUTION NO. 22-99

WHEREAS, the District has caused a Groundwater Management Plan to be prepared, and

WHEREAS, a noticed public hearing is required prior to the adoption of the Plan, and

WHEREAS, all notices required by law were duly made and given, announcing the time and place of the meeting to be on August 10, 1999, at the hour of 7:00 p.m. at the Board Room of the District, located at 12152 Road 28 ¼, Madera, CA 93637, and

WHEREAS, copies of the proposed plan were available at the office of the District for inspection or acquisition at the cost of reproduction, and

WHEREAS, said public meeting was duly held and evidence both oral and documentary having been introduced, and at the conclusion thereof, the hearing closed, and

WHEREAS, prior to the close of the hearing no written protests to the adoption of the plan were filed by any landowner within the District, and

WHEREAS, it is to the best interest of the District that the plan be adopted.

NOW, THEREFORE, BE IT RESOLVED:

1. The AB3030 Groundwater Management Plan, dated May 1999, prepared by Boyle Engineering Corporation is hereby adopted and shall be implemented by the Board of Directors of the District.

2. The Plan shall apply to all lands within the boundaries of the District except lands located within the City of Madera.

3. Lands located within the City of Madera shall not become subject to the Plan, unless and until the City Council by a majority vote declines to exercise the authority granted by Division 6, Part 2.75, and an agreement pursuant to Water Code §10750.8 is executed by the City and the District, or the City of Madera joins with the District in the adoption of the plan either directly or through a joint powers agreement.

The foregoing resolution was duly and regularly adopted at a regular adjourned meeting of the Board of Directors of the MADERA IRRIGATION DISTRICT, held at the offices of the District on the 10th day of August, 1999, on motion of Director Galleano, seconded by Director Janzen, on the following vote:

Directors voting aye: Pistoresi, Galleano, Bursey, Janzen and Teranishi

Directors voting no: None

Directors abstaining: None

Directors absent: None

Ronald H. Pistoresi, President

Attest:

Cynthia A. Rascoe, Secretary

MADERA IRRIGATION DISTRICT

BOARD OF DIRECTORS MEETING
October 31, 2000

AGENDA ITEM NO. 4

SUBJECT: AB 3030 Groundwater Management Plan Hearing

DISCUSSION:

District Legal Counsel has drafted proposed revisions to the District's AB3030 Groundwater Management Plan that incorporate provisions for permitting importation, banking and exportation of water from the District. The proposed changes are consistent with the ordinance approved by Madera County in July.

RECOMMENDATION:

Approve the proposed revisions to the Groundwater Management Plan.

MADERA IRRIGATION DISTRICT
NOTICE OF PUBLIC HEARING ON AMENDMENT TO DISTRICT'S AB 3030 GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that on October 31, 2000 at 2:00 p.m. at the Board Room of the Board of Directors of the Madera Irrigation District located at 12152 Road 28 1/4, Madera, CA 93637, the District will hold a public hearing to determine whether or not to adopt an Amendment to the District AB 3030 Groundwater Management Plan as adopted August 10, 1999, pursuant to California Water Code Sections 10750 through 10755.

I. Summary of the Amendment

The primary goal of the Amendment is to delete the current Section 5 (Regulations Pertaining to Exportation of Groundwater) of the District's AB 3030 Groundwater Management Plan and replace it with a new Section 5 (District Groundwater Import, Export and Banking Ordinance).

II. Primary Goals of the Amendment

- Ensure the long-term availability of high-quality groundwater.
- Maintain local control of groundwater resources within the District.
- Minimize the cost of groundwater use.
- Prohibit the net export of groundwater from the District and use of groundwater to replace surface water removed from the District as result of a transfer.
- Minimize the impacts of groundwater pumping, including subsidence, overdraft, and soil productivity.
- Prevent unnecessary restrictions on the private use of the District's groundwater resources.
- Ensure coordination between the District, local, and regional groundwater management activities.
- Ensure efficient use of the District's groundwater resources and minimize deep percolation in areas where it may contribute to the shallow groundwater problem through the use of an effective water conservation and management program.
- Coordinate with other local irrigation districts and the city and county of Madera to preserve local water rights.
- Ensure that mitigation is provided for environmental and economic impacts within the District that could result from groundwater banking, groundwater exportation or importation of foreign water.

III. Items considered during preparation of the Amendment

The District evaluated the condition of the Madera Groundwater Basin and considered the following items when preparing the Amendment.

IV. District Proposals

The proposed Amendment includes the following elements:

- Rules and regulations pertaining to groundwater banking; importation of foreign water for the purpose of groundwater banking; exportation of groundwater outside the District; and use of District facilities for such purposes.

- The Amendment requires persons who use lands within the District for groundwater banking, importing foreign water for groundwater banking, and exporting groundwater outside of the District or use District facilities to obtain a permit for such use from the District, after presentation of the plan including geological and hydrological reports and public hearings.

V. Procedures for the Amendment Approval

Any landowner in the District may examine a copy of the Amendment at the office of the District and obtain a copy of the Amendment by paying the cost of reproduction.

Any landowner within the District may file a written protest to the adoption of the Amendment, or withdraw protest previously filed, at any time prior to the conclusion of the hearing.

A majority protest exists if landowners representing more than fifty percent of the assessed value of the land within the District file and do not withdraw protests to the adoption of the Amendment. In such event the Amendment will not be adopted.

If majority protest does not exist, the District may adopt the Amendment within thirty-five days after the conclusion of the hearing.

Dated: October 13, 2000

Cynthia Rascoe, Secretary to the Board

CFAS Low stated that a copy of a letter dated October 19 from Madera County Counsel that was written to the Attorney General requesting an opinion from the Attorney General on the Prop 13 one percent property tax allocation. The letter noted that the City of Madera has challenged the District receiving this money. It also stated that the Madera County Auditor, based on his review of the Revenue and Taxation Codes and the Water Code, feels the District qualifies for this money but the City is requesting the opinion of the Attorney General. A reply has yet to be received.

Director Galleano entered the meeting at 2:00 p.m.

President Pistoresi questioned if there is anything more that District staff needs to do in order to obtain a reply from the Attorney General. GM Ottemoeller stated that staff will look into this to see if more can be done.

Mr. Dick Johnson entered the meeting at 2:00 p.m.

GM Ottemoeller commended the staff for the job they did getting out such a large amount of assessments in a relatively short period of time. He added that there was a lot less time spent this year on getting the assessments out due to the speed of the new computer and printer. It was reduced down to three days from over seven.

1-0785 **AB 3030 GROUNDWATER MANAGEMENT PLAN HEARING**

GM Ottemoeller stated that this process is about the District approving a Groundwater Management Plan on August 10, 1999. One of the aspects of that Groundwater Management Plan was Chapter 5 which included a permitting requirement for groundwater exportation and groundwater banking. Since that time, the County of Madera has passed an ordinance that was similar in intent but added groundwater importation as one of the issues that would require a permit for County lands and requested that districts within the County amend whatever ordinance or rules they have to be essentially consistent with the County's ordinance.

The District had its legal counsel use the County's ordinance as a model and it's also very close to work that they were doing for the Gravelly Ford Water District in terms of developing an ordinance. This ordinance is basically a total rewrite from the District's original Chapter 5 of its Groundwater Management Plan.

GM Ottemoeller stated that what the District would be doing is amending the Groundwater Management Plan, so the current Chapter 5 would be taken out and this would be inserted as the new Chapter 5 of the

Groundwater Management Plan. Consistent with that, legal counsel has advised the District to pass an ordinance so it has the ability to enforce the rules set up by the Groundwater Management Plan. Essentially, they would be identical except one would be considered a Groundwater Management Plan and the other would be considered an ordinance.

The basic differences are simply that instead of the two aspects requiring a permit the District now has four separate ones. One of them is the exportation of groundwater from the District. The second one would be groundwater banking within the District. The third permitting requirement would be importation of groundwater. There is also a section that deals with the advance of water through the District system for the purpose of groundwater exportation/importation of banking. Another aspect of this that isn't in the District's current Groundwater Management Plan is provision from the State Water Code for penalties for violations. This was basically pulled out of the Water Code since the District doesn't have separate authority to impose fines.

GM Ottemoeller recommended that the proposed revisions not be approved of today but take any comments from the Hearing and then consider them for approval at the next meeting, the revision to the Groundwater Management Plan and the Ordinance.

Director Janzen stated that on Page 13, Terms and Conditions of Permit, where it states, "...the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity..." he would like to insert somewhere in that statement "the depth" whether it be too high or too low.

President Pistoresi asked if there was anyone in the audience who wanted to comment on AB 3030 Groundwater Management Plan.

There were no comments from the public.

1-1034 GM Ottemoeller commented regarding the requirements for the application on Page 15, Application for Permit, he would want to insert the method of the placement of the water to be banked. In otherwords, is it spreading ponds, injection wells, in-lieu banking. He also had a similar type comment on Page 23, on the importation. Basically the same thing, the proposed method of placement and disposition of the water that is going to be imported. He would like this added to the list of things that they have to provide in the application.

On Page 34, Findings Required for Permit Approval or Denial by the Board, GM Ottemoeller stated he would like to insert that "it would not unreasonably affect the delivery of water to District landowners."

Director Galleano stated if a groundwater banking project went in, they would only be entitled to current state law, which would be excess capacity. In otherwords, their growers would be serviced first at all times. GM Ottemoeller stated that would need to be made clear because the way it was written, it wasn't very clear to him.

As there were no further comments, President Pistoresi closed this portion of the Groundwater Management Plan Hearing stating that it would be continued for approval at the next MID Board Meeting on November 21, 2000.

GM Ottemoeller stated that under the rules of the Groundwater Management Plan if 50% of the landowners had protested, these changes couldn't have been made. Since there wasn't a protest, the Board now has 30 days to approve the changes to the Groundwater Management Plan. It won't be necessary to advertise again. Posting requirements have been met and no one requested copies of the proposed changes.

President Pistoresi pointed out that seated in the audience was Mr. Tom Petrucci, who is the MID incoming director for District 1. He will be replacing Director Teranishi who will be retiring from the District in December.

1-1231 **ENGINEERING REPORT**

CE Roberts stated since the last meeting the Engineering Department has been entering the Fall Groundwater measurement data into the computer. Over the past 15 years, average groundwater depth has dropped an average of 45 feet in the District. The crop survey input has also been entered into the computer and it will be printed out and sent to the Bureau. Work continues on the Underground Service Alert notices; splits have been completed for this year's assessments; City/County letters; finished the riparian program until more changes are needed; and data is being gathered for the paperwork on the annexation for Prudential for Legal Counsel Campos.

CE Roberts also reported on the Watershed Committee Meeting he attended in Oakhurst. At this time they are basically looking at water quality in various rivers and the ones they have started on are the Merced and Chowchilla Rivers. They are looking at things along the watershed that have potential for contamination into the rivers. As an example, there are some old gas stations along the Merced River and a lot of old mines in that area. The County has received some funding, so they will be doing some water quality testing on the Fresno River. They have about 25 sites

MADERA IRRIGATION DISTRICT

BOARD OF DIRECTORS METING
November 21, 2000

AGENDA ITEM NO. 7

SUBJECT: AB 3030 Groundwater Management Plan Amendment

DISCUSSION:

The Board held a hearing on October 31 regarding proposed amendments to the District's AB3030 Groundwater Management Plan. The amendments are related to permitting requirements for exportation of groundwater from the District, groundwater banking in the District or importation of surface water for purposes of banking in the District. The Board will consider for approval the proposed rules and regulations as presented at the hearing and as modified to reflect discussion or comments during the hearing.

District legal counsel has also recommended that the District adopt an ordinance consistent with the proposed amendments that will provide the District the necessary authority to enforce the Groundwater Management Plan.

RECOMMENDATION:

Approve the proposed amendment of the Districts Groundwater Management Plan and adopt an Ordinance Adding Rules and Regulations Relating to Groundwater Exportation, Groundwater Banking and Importation of Foreign Water.

raised on the amount of annexation and included if they detach or have a land use change, then the landowner is forced to detach at the landowner's cost. There is also a buy out provision in the agreement.

President Pistoresi stated there were some concerns about people who purchased the lands and excess lands, and where they are moving their water. CE Roberts stated the agreement has a provision that states the lands brought in as excess shall remain excess even if they change ownership to a person that could make it non-excess.

President Pistoresi stated that the main provision was access onto their lands and MID's ability to monitor the water. There was concern as to whether MID could drive on the land to check and see if the water has been taken onto land that is not being paid for. GM Ottemoeller stated that MID has that ability on land that is within the District. Land that is outside the District, there is the issue in which we need a warrant to check on the water use.

President Pistoresi stated he would like to see this issue clarified in the annexation agreement. The Directors were asked for their comments. Director Teranishi stated that this is a legitimate concern and if it is possible to incorporate language in the agreement to cover the District, it should be done. Director Janzen stated that the excess land would be part of all of the land and he believes MID would have the right to go on the land. Director Galleano stated that staff should clarify this issue with legal counsel.

President Pistoresi directed staff to inform the landowners that there is a provision to be incorporated in the annexation agreements that was left out from previous discussions. This item will be placed on the agenda for approval at the next board meeting.

Director Galleano left the meeting at 5:05 p.m.

2-3183 **AB 3030 GROUNDWATER MANAGEMENT PLAN AMENDMENT**

The Board held a hearing on October 31 regarding proposed amendments to the District's AB 3030 Groundwater Management Plan. The amendments are related to permitting requirements for exportation of groundwater from the District, groundwater banking in the District, or importation of surface water for purposes of banking in the District.

GM Ottemoeller stated the proposed rules and regulations have been modified based on his comments and any comments during the Hearing. GM Ottemoeller reported the changes he was proposing and stated that these changes were identified or discussed during the hearing.

MOTION **Director Janzen moved to approve the amendment of the District's Groundwater Management Plan and adopt an Ordinance Adding Rules and Regulations Relating to Groundwater Exportation, Groundwater Banking and Importation of Foreign Water, seconded by Director Bursey. Motion carried.**

3-310 **JANITORIAL BIDS**

CFAS Low reported that bids for janitorial services were opened and reviewed Monday, November 20, 2000 at 9:30 a.m. Proposals were sent out to 10 vendors and 3 were returned as "No bid". The bids received ranged from $500 per month up to $1,800 per month for service 3 days per week. Professional Building Maintenance is the District's current janitorial service. The Board reviewed the Janitorial Bid Summary Sheet.

CFAS Low recommended that the bid be awarded to Professional Building Maintenance and stated that they are holding the same rate as last year. A rating system will be incorporated to allow the District to monitor the cleaning services.

MOTION **Director Janzen moved to accept the low bid from Professional Building Maintenance in the amount of $960 per month as recommended by staff, seconded by Director Bursey. Motion carried.**

3-640 **UNDERGROUND SERVICE ALARM MODEM AND PRINTER**

CE Roberts reported that MID belongs to Underground Service Alert (USA) which provides the proposed location of projects near District facilities. The District receives the daily information through a dedicated modem that is programmed to receive only the USA messages. The current modem/printer is about seven years old and has shut down on several occasions recently because it is wearing out.

The new modem/printer with priority back-up service will cost $1,241.67 and is only available from a single source company.

MOTION **Director Janzen moved to approve the purchase of a new modem/printer unit with priority back-up service for $1,241.67 for the Underground Service Alert (USA) notification, seconded by Director Bursey. Motion carried.**

BEFORE
THE BOARD OF DIRECTORS
OF THE
MADERA IRRIGATION DISTRICT
STATE OF CALIFORNIA

ORDINANCE

GROUNDWATER EXPORTATION, GROUNDWATER BANKING, IMPORTATION OF FOREIGN WATER, AND USE OF DISTRICT FACILITIES FOR SUCH PURPOSES

Chapter .100
Rules and Regulations Pertaining to Groundwater Banking; Importation of Foreign Water For the Purpose of Groundwater Banking; Exportation of Groundwater Outside the District; and Use of District Facilities for such Purposes.

.100.010 PURPOSE AND INTENT.

A. The lands within Madera Irrigation District ("District") are heavily dependent upon groundwater. The groundwater basin(s) underlying the District and surrounding areas are severely overdrafted.

B. It is essential to the continued prosperity of the landowners and water users within the District that the quality and quantity of the groundwater supply be maintained to meet the demands of District landowners and water users.

C. Areas within the District are or could be or become subject to land subsidence due to the extraction of groundwater.

D. The direct or indirect transfer of groundwater outside the District may have significant environmental impacts on the area within the District including, but not limited to, increased groundwater overdraft; land subsidence; uncontrolled movement of contaminated groundwater; uncontrolled movement of poor quality or contaminated groundwater; the lowering of groundwater levels; increased groundwater or soil degradation; and loss of aquifer capacity due to land subsidence.

E. The direct or indirect transfer of groundwater outside the District may have significant economic impacts on areas within the District including, but not limited to, loss of arable

agricultural land; increased pumping costs due to lowered groundwater levels; increased groundwater quality treatment costs due to movement of contaminated or poor quality groundwater; replacement of wells due to declining groundwater levels, and replacement of damaged wells, conveyance facilities, roads, bridges and other structures due to land subsidence.

F. The importation of water originating outside of Madera County (whether or not conveyed through or pooled with facilities located in or adjacent to Madera County) for the purpose of Groundwater Banking such water ("Foreign Water") could, if unregulated, introduce water of an inferior quality into District aquifers, resulting in significant economic and environmental impacts on areas within the District, including, but not limited to, those specified in Paragraphs D. and E., above .

G. As used herein the term "Groundwater Banking" means the percolation, injection, or other recharge of a supply of water for the purpose of later extraction and delivery of such water outside of the District. Groundwater Banking can be reasonable and beneficial if it can be accomplished without:

(1) causing or increasing an overdraft of groundwater underlying the District;

(2) adversely affecting the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District (for example by utilizing storage that might otherwise be subject to natural or passive recharge and thus depriving other groundwater users of their use of the aquifer and the groundwater derived therefrom) ;

(3) adversely affecting the reasonable and beneficial uses of groundwater by other groundwater users within the District;

(4) resulting in, expanding, or exacerbating degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District;

(5) resulting in injury to a water replenishment, storage, restoration, or conveyance project or facility;

(6) adversely affecting the surface or subsurface of neighboring or nearby lands, or the trees, vines, or crops growing or to be grown thereon;

(7) adversely affecting the economy or environment of the area within the District; or

(8) adversely affecting the recharge and storage ability on adjacent lands where passive recharge may take place.

H. For Groundwater Banking projects all or a portion of which will be located within the District, it is essential that the District be the agency that determines whether a permit should be issued to allow groundwater banking, exportation of groundwater, or importation of foreign water, within such areas. Without a permit process which allows public notice, public hearings, and compliance with environmental and other appropriate requirements, there would be no or inadequate local control over such groundwater banking, exportation of groundwater, or importation of foreign water, nor a method to insure that groundwater banking will meet the requirements of Paragraph G., above.

I. The District, as the agency most familiar with local conditions affecting groundwater, should adopt reasonable regulatory measures in relation to exportation of groundwater, Groundwater Banking, and the importation of Foreign Water for the purpose of Groundwater Banking.

J. California Water Code section 1810(d) provides that use of a water conveyance facility to transfer water may be denied if the use of the water conveyance facility will injure any legal user of water, will unreasonably affect fish, wildlife or other in-stream beneficial uses, or will unreasonably affect the overall economy or the environment of the county from which the water is being transferred.

.100.020 TITLE.

These provisions shall be known as "Rules and Regulations Pertaining to Groundwater Banking; Importation of Foreign Water For the Purpose of Groundwater Banking; Exportation of Groundwater Outside the District; and Use of District Facilities for such Purposes."

__.100.030 DEFINITIONS

The terms used in this Chapter have the following meanings, unless otherwise expressly provided:

A. "Damage Prevention Plan" means a written plan which specifically details the problems that may occur as a result of the operation of the project and details what actions will be taken by the Applicant to mitigate or eliminate the problems in order to prevent damage to the site and surrounding properties.

B. "Emergency Action Plan" means a written plan which provides a complete and detailed evaluation of potential project failures that can occur during operation of the project and which details what actions the Applicant will take to prevent or minimize damage to the project and protect the public and surrounding properties.

C. "Exportation of Groundwater" means the extraction of groundwater from any well within the boundaries of the County and located on or under lands subject to this Chapter and used on lands which are outside of the boundaries of the County, unless the lands on which the water is being used are contiguous to the lands where the water is extracted, and are owned by the same landowner.

D. "Foreign Water" means water originating outside of Madera County, whether or not conveyed through or pooled with facilities located in or adjacent to Madera County, which is imported into Madera County for purposes of groundwater banking.

E "Groundwater" means water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated.

F. "Groundwater Banking" means the importation of a surface supply of water that is percolated or injected to groundwater for storage, or placed underground by means of in-lieu recharge, for later extraction and delivery.

G. "Groundwater Management Plan" means a groundwater management plan adopted pursuant to California Water Code section 10750 et seq.

H. "Local water agencies" means public agencies, districts, or mutual water companies located wholly or partly within Madera County which have as their primary function the supplying of water for domestic, agricultural, industrial, or municipal purposes.

I. "Operations and Maintenance Plan" means a written plan which provides complete details of how the Applicant plans to operate and maintain the project after construction is completed. This Plan must show who will assume the responsibility for the operation and maintenance of the project and provide an organizational chart detailing the job responsibilities of each position shown.

J. "Person" means an individual, partnership, company, corporation, unincorporated association, public agency, or other form of business entity.

K. "Project Monitoring Plan" means a written plan which details how the Applicant will monitor the project site and properties outside of the project boundaries for possible damage from operation of the project.

L. "Project Water Measurement and Water Loss Accountability Plan" means a written plan which details how water into and out of the project will be measured and how the Applicant plans to calculate or otherwise account for project water losses. The Plan must provide details of what types of measuring equipment will be used on the project and where it will be installed.

M. "Safety Action Plan" means a written plan which provides information on who will be responsible for implementing the safety requirements for the project and which also provides details of all project safety requirements, including those needed to protect the public and surrounding properties.

.100.040 LAND SUBJECT TO ARTICLE.

This Chapter shall be applicable to all lands within the District boundaries. If a portion of a Groundwater Banking project lies within the District, and a portion lies outside the boundaries of the District, then this Chapter shall apply to that portion that lies within the boundaries of the District.

__.100.050 EXPORTATION OF GROUNDWATER BEYOND DISTRICT BOUNDARIES.

A. REQUIREMENT OF PERMIT:

Except under a permit granted pursuant to this Section, no groundwater extracted from any well within the boundaries of the District and located on or under lands subject to this Chapter, shall be used on lands which are outside of the boundaries of the District, unless the lands on which the water is being used are contiguous to the lands where the water is extracted, and are owned by the same landowner. A permit is required under this Section whether or not such exportation is pursuant to Groundwater Banking that is also subject to a separate permit under Section __.100.060. A permit for exportation under this Section may cover all exportation of water to a specified water user in amounts specified in the permit for a period not to exceed five years from the granting of the permit, after which a new permit shall be required.

B. APPLICATION FOR PERMIT:

Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The source of the water to be exported.

b. The quantity and quality of water proposed to be exported.

c. The location to which and purpose for which the water is to be exported, including the reasonable and beneficial use to which the water is to be put.

d. The geologic and hydrologic properties of the aquifers from which extraction will be made, including possibilities or likelihood of subsidence problems.

e. Percolation tests to determine the ability of the aquifer(s) to recharge.

f. Clay layers and their effect on percolation.

g. The applicant's Project Water Measurement and Water Loss Accountability Plan.

h. The applicant's Damage Prevention Plan.

i. The applicant's Project Monitoring Plan.

j. The applicant's Safety Action Plan.

k. The applicant's Emergency Action Plan.

l. The location, size, spacing and depths of extraction wells.

m. Horizontal migration of groundwater from surrounding locations.

n. The means and criteria for determining any effects on surrounding lands and their groundwater supplies.

o. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:
An Application for extraction permit under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional geologic or hydrologic studies, or other information

or studies, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable local, state and federal agencies and with, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.

After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:

The permit may only be approved if the District finds that the proposed extraction and exportation will not have detrimental impacts on the District by determining that:

(1) The extraction and exportation will not cause or increase an overdraft on parts or all of the groundwater basins underlying the District.

(2) The extraction and exportation will not adversely affect the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District.

(3) The extraction and exportation will not adversely effect the reasonable and beneficial uses of groundwater by other groundwater users within the District.

(4) The extraction and exportation will not result in, expand, or exacerbate degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District.

(5) The extraction and exportation will not result in injury to a water replenishment, storage, restoration, or conveyance project or facility;

(6) The extraction and exportation will not adversely affect the overall economy or environment of the area within the District.

If the Board determines that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within five miles of the exterior boundaries of the proposed extraction site, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. The District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and

6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, the location from which the water is proposed to be extracted and exported, and a general description of the project and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity of the groundwater supply, adjacent or neighboring lands, or the environment.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his

representatives, at any reasonable time, and from time to time, to enter the project site and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to California Code of Civil Procedure Section 1094.5 and within the time limits prescribed in California Code of Civil Procedure section 1094.6.

__.100.060 GROUNDWATER BANKING.

A. REQUIREMENT OF PERMIT:
No person, who is subject to this Ordinance, other than the District, shall engage in Groundwater Banking on or under land subject to this Ordinance without first obtaining a permit from the District in accordance with this Section. A permit for Groundwater Banking under this Section may cover all Groundwater Banking for amounts of storage specified in the permit for a period not to exceed five years from the granting of the permit, after which a new permit shall be required. A permit for Groundwater Banking is not a permit for importation of Foreign Water to the Groundwater Bank (which importation shall require a separate permit under Section __.100.070), and it is not a permit for exportation of groundwater beyond District boundaries (which exportation shall require a separate permit under Section __.100.050).

B. APPLICATION FOR PERMIT:
Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The location, plans, and specifications of the proposed project.

b. The quantity of water proposed to be imported, and the quality standards thereof, including possibilities or likelihood of contamination or degradation problems.

c. The method of placement of water to be banked

d. The quantities of groundwater to be extracted.

e. The geologic and hydrologic properties of the aquifers into which recharge will occur and from which extraction will be made, including possibilities or likelihood of subsidence problems.

f. Percolation tests to determine the ability of the aquifer(s) to recharge.

g. Clay layers and their effect on percolation.

h. Design of spreading areas.

i. The applicant's Operations and Maintenance Plan.

j. The applicant's Project Water Measurement and Water Loss Accountability Plan.

k. The applicant's Damage Prevention Plan.

l. The applicant's Project Monitoring Plan.

m. The applicant's Safety Action Plan.

n. The applicant's Emergency Action Plan.

o. The location, size, spacing and depths of extraction wells.

p. Horizontal migration of groundwater from surrounding locations.

q. The means and criteria for determining any effects on surrounding lands and their groundwater supplies.

r. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:
An Application for Groundwater Banking under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional geologic or hydrologic studies, or other studies or information, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable local, state and federal agencies, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.
After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:

The permit may only be approved if the District finds that the proposed Groundwater Banking project will not have detrimental impacts on the District by determining that:

(1) The project will not adversely affect the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District (for example by utilizing storage that might otherwise be subject to natural or passive recharge and thus depriving other groundwater users of their use of the aquifer and the groundwater derived therefrom).

(2) The project will not adversely affect the reasonable and beneficial uses of groundwater by other groundwater users within the District.

(3) The project will not result in, expand, or exacerbate degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District.

(4) The project will not result in injury to a water replenishment, storage, restoration, or conveyance project or facility.

(5) The project will not adversely affect the surface or subsurface of neighboring or nearby lands, or the trees, vines, or crops growing or to be grown thereon.

(6) The project will not adversely affect the overall economy or environment of the District.

(7) The project will not cause or increase an overdraft of groundwater underlying the District.

(8) The project will not adversely affect the storage ability on adjacent lands where passive recharge may take place.

If the Board determines that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within the District which are located within five miles of project site, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. the District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and 6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, a general description of the proposed importation and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity of the groundwater supply, adjacent or neighboring lands, or the environment. Since direct or other subsurface injection of water into an aquifer entails an inherent risk of irreparable contamination due to the lack of natural filtering resulting from percolation, the permit shall prohibit the use of direct or other subsurface injection.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the project site(s) and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to California Code of Civil Procedure Section 1094.5 and within the time limits prescribed in California Code of Civil Procedure section 1094.6.

.100.070 IMPORTATION OF FOREIGN WATER FOR GROUNDWATER BANKING.

A. REQUIREMENT OF PERMIT:
Except under a permit granted pursuant to this Section, no person may import Foreign Water for the purpose of Groundwater Banking within the boundaries of the District and located on or under lands subject to this Chapter. A permit is required under this Section whether or not such importation is pursuant to Groundwater Banking that is also subject to a separate permit under Section __.100.060. A permit for importation under this Section may cover all importation of water from a specified water source (designated by specific location and type) in amounts specified in the permit for a period not to exceed five years from the granting of the permit, after which a new permit shall be required.

B. APPLICATION FOR PERMIT:
Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The source of the water to be imported.

b. The quantity and quality of water proposed to be imported.

c. The manner in which the water is to be conveyed to the Groundwater Banking facility, including the specific location of conveyance facilities, and copies of all permits and agreements showing consent for the use of such conveyance facilities.

d. The proposed method of placement of water to be imported and banked

e. The physical, and where applicable the geologic and hydrologic, properties of the conveyance facilities, including possibilities or likelihood of contamination or degradation problems.

f. The applicant's Project Water Measurement and Water Accountability Plan.

g. The applicant's Damage Prevention Plan.

h. The applicant's Project Monitoring Plan.

i. The applicant's Safety Action Plan.

j. The applicant's Emergency Action Plan.

k. The means and criteria for determining any effects on lands surrounding or neighboring all conveyance facilities and on their groundwater or surface water supplies.

l. The means and criteria for determining any effects on all other water supplies into which the proposed Foreign Water may be commingled while being conveyed, such as in a pool or reservoir.

m. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:
An Application for Foreign Water Importation Permit under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional geologic or hydrologic studies, or other studies or information, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable state and federal agencies, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.
After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:
The permit may only be approved if the District finds that the proposed importation of Foreign Water will not have detrimental impacts on the District by determining that:

(1) The importation will not adversely affect the ability of other groundwater users to use, store, or transmit groundwater within any aquifer(s) underlying the District.

(2) The importation will not adversely affect the reasonable and beneficial uses of groundwater by other groundwater users within the District.

(3) The importation will not result in, expand, or exacerbate degradation of the quality or quantity of surface or groundwater within the District, or groundwater basins and aquifers within the District.

(4) The importation will not result in injury to a water replenishment, storage, restoration, or conveyance project or facility.

(5) The project will not adversely affect the surface or subsurface of neighboring or nearby lands, or the trees, vines, or crops growing or to be grown thereon.

(6) The importation will not adversely affect the overall economy or environment of the District.

(7) The existing qualities of the underground aquifers will not be degraded by the importation.

(8) The importation will not adversely affect the storage ability on adjacent lands where passive recharge may take place.

If the Board determine that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within the District which are located within five miles of any conveyance facilities that are within or adjacent to the District, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the project, a description or map of the land involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. The District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and 6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, a general description of the proposed importation and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms

and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects on the aquifer(s), the quality and quantity of the groundwater supply, adjacent or neighboring lands, or the environment.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the project site(s) and make such observations and measurements as are deemed necessary to assure that the project is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to California Code of Civil Procedure Section 1094.5 and within the time limits prescribed in California Code of Civil Procedure section 1094.6.

.100.080 DISTRICT CONVEYANCE FACILITIES:

A. REQUIREMENT OF PERMIT:
In order to avoid injury to any legal user of water, and to avoid unreasonably affecting the overall economy or the environment of Madera county, no person may use any

District-owned conveyance facility as a part of, or in connection with, Groundwater Banking for which a permit is required under this Chapter, or the importation of Foreign Water for which a permit is required under this Chapter, or the exportation of groundwater for which a permit is required under this Chapter, except under a permit granted pursuant to this Section. A permit is required under this Section whether or not such use is in connection with groundwater banking, importation of foreign water, or exportation of groundwater for which a separate permit or permits are required under other Sections of this Chapter. A permit for use of a district conveyance facility under this Section may cover all importation of water from a specified water source (designated by specific location and type) in amounts specified in the permit for a period not to exceed two years from the granting of the permit, after which a new permit shall be required.

B. APPLICATION FOR PERMIT:

Applications for permits under this Section shall be made to the District on forms provided by the District and shall contain all information and reports required therein. An Application shall be accompanied by a report ("Report") prepared at the applicant's expense by a qualified Registered Civil Engineer or Geologist, versed in geologic and hydraulic testing, which shows:

a. The source of the water to be conveyed through the conveyance facility.

b. The quantity and quality of water proposed to be conveyed.

c. The manner in which the water is to be delivered to and withdrawn from the District conveyance facility and how the water is to conveyed from its source to the District's conveyance facility.

d. The physical, and where applicable the geologic and hydrologic, properties of the conveyance facilities through which the water will be delivered into the District's conveyance facilities, including possibilities or likelihood of contamination or degradation problems.

e. The applicant's Project Water Measurement and Water Accountability Plan.

f. The applicant's Damage Prevention Plan.

g. The applicant's Project Monitoring Plan.

h. The applicant's Safety Action Plan.

i. The applicant's Emergency Action Plan.

j. The means and criteria for determining any effects on lands within the District and otherwise surrounding or neighboring all conveyance facilities and on their groundwater or surface water supplies.

k. The means and criteria for determining any effects on all other water supplies with which the water proposed to be conveyed may be commingled while being conveyed.

l. The means and criteria for determining any effects of the use of the District conveyance facility on any other legal user of water conveyed or to be conveyed through such facilities.

m. The means and criteria for determining any effects of the use of the District conveyance facility on fish, wildlife, other instream beneficial uses, or the environment within the District and within Madera County.

n. The means and criteria for determining any effects of the use of the District conveyance facility on the economy within the District and within Madera County.

o. Such other matters as the District may require.

Five copies of the Application, Report, and other information submitted shall be provided.

C. ENVIRONMENTAL IMPACT REPORT:
An Application for Use of District Conveyance Facility under this Section is deemed to be a "project" under the California Environmental Quality Act ("CEQA") and its implementing regulations ("CEQA Guidelines"). In order to ensure that

decision-makers have sufficient information on the potential impacts of such a project, the preparation and certification of an Environmental Impact Report ("EIR") is hereby required for each such project application. The EIR must conform to CEQA, CEQA Guidelines, and all District requirements. The EIR shall be prepared, and shall be paid for by the applicant, in accordance with the District's CEQA implementation procedures.

D. ADDITIONAL STUDIES AND REQUIREMENTS:
If, after receiving the Report as required by Paragraph B., above, and before or after receiving the EIR, the District Engineer desires more information, he or she may require preparation by applicant, at applicant's expense, of any additional physical, geologic or hydrologic studies, or other studies or information, that he or she deems necessary to obtain information needed in order to make a recommendation on the application. The Engineer may review the application with potentially affected landowners and water users, with the staff of applicable state and federal agencies, and with the Madera County Water Oversight Committee.

E. REVIEW OF APPLICATION.
After reviewing the Application, Report, Environmental Impact Report, and any additional studies and other information required under Paragraph D., above, the District Engineer shall prepare a written report, with all comments attached thereto, in which he or she either shall recommend denial of the permit, or granting the permit with suggested conditions for the project. The written report also shall include recommendations concerning the adequacy of the EIR. All documents shall be filed with the Secretary of the Board.

F. FINDINGS REQUIRED FOR PERMIT APPROVAL OR DENIAL BY THE BOARD:
The permit may only be approved if the District finds that the proposed use of District conveyance facility will not:

(1) Injure any legal user of water.

(2) Unreasonably affect the delivery of water to any District landowners.

(3) Unreasonably affect fish, wildlife, or other instream beneficial uses.

(4) Unreasonably affect the overall economy of the county from which the water is to be transferred.

(5) Unreasonably affect the environment of the county from which the water is to be transferred.

If the Board determines that one or more of the findings required by this Section cannot be made, the Board shall deny the permit application. The basis for any such denial shall be reflected in the Board's official record of proceedings.

G. RE-APPLICATION AFTER BOARD DENIAL:
Re-application for a permit that has been denied by the Board may not be filed until one year after the date of denial.

H. PAYMENT OF FEES.
The applicant at the time of filing shall pay such fees as are or may be established by the Board for processing the application and the giving and publication of required notices.

I. NOTICE TO LANDOWNERS:
Upon the filing of an application with the District, the District shall give written notice to all owners of lands located within the District which are located within five miles of any conveyance facilities that are within or adjacent to the District, setting forth the name of the applicant, a description of the applicant's proposal, a description or map of the District facility involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. In addition thereto, the District shall cause to be published pursuant to Government Code §§ 6060 and 6061.3 a notice that the application has been filed, setting forth the name of the applicant, a description of the applicant's proposal, a description or map of the District facility involved, and a statement that all documents submitted in connection with the application are public records subject to inspection at the office of the District. The District shall retain one copy of the application documents, EIR, and any comments or reports thereon and make them available for public inspection and copying in accordance with the Public Records Act.

J. NOTICED PUBLIC HEARING:
No permit shall be issued without a noticed public hearing before the Board pursuant to Government Code §§ 6060 and

6061.3. The notice shall be given by the Secretary of the Board after completion and filing of the Engineer's Report and the environmental review process. The notice shall specify the time and place of the hearing, a general description of the proposed importation and that any interested person may submit evidence at the hearing. At least fifteen days must elapse between filing the documents with the Secretary of the Board and the date of the hearing.

K. PROCEDURES FOR CONDUCTING HEARING:
At the hearing, the Application, Report, Environmental Impact Report, additional submittals, comments from the public and the Engineer's Recommendation shall become evidence. The applicant and members of the public, or their representatives, may testify and introduce evidence in favor of, or in opposition to, the project.

L. DECISION AFTER HEARING.
At the conclusion of the hearing, the Board shall approve the application and grant the permit if the Board makes the findings set forth in Paragraph F., above, subject to the terms and provisions authorized in Paragraph M., below. If the Board is unable to make the findings set forth in Paragraph F., above, then the application shall be denied and no permit shall be issued. The Board shall direct that written findings are prepared in conformity with its decision and shall adopt said findings when prepared.

M. TERMS AND CONDITIONS OF PERMIT:
If an application is approved, the Board may impose such terms and conditions thereon as the Board deems necessary to prevent adverse effects described in Paragraph F, above.

N. REVOCATION OF PERMIT:
Any violation of the terms and conditions of the permit will constitute grounds for revocation of the permit after a duly noticed public hearing thereon held in the manner described in the preceding Paragraphs.

O. INSPECTIONS:
If an application is approved and a permit granted, then the applicant's acceptance of the permit shall constitute the applicant's consent for the District Engineer, or his representatives, at any reasonable time, and from time to time, to enter the applicant's site(s) and make such observations and measurements as are deemed necessary

to assure that the applicant's proposed use is being carried out under the terms of the permit.

P. DECISION OF BOARD FINAL:
The decision of the Board in any matter set forth herein, other than criminal penalties, shall be final upon its adoption of written findings.

Q. JUDICIAL REVIEW:
Any judicial action to set aside, annul, or vacate any decision or action taken by the Board pursuant to this Chapter shall be filed pursuant to Cal. Code of Civil Procedure Section 1094.5 and within the time limits prescribed in Cal. Code of Civil Procedure section 1094.6.

.100.090 PENALTIES FOR VIOLATION:

These rules and regulations are enacted to secure distribution of water in accordance with determined rights within the District pursuant to California Water Code Section 22085. Supervision and enforcement of these regulations shall be by District watermasters appointed under Water Code Section 22081. The District may elect to proceed with any or all of the following remedies for violation of this Chapter:

(a) A civil action against the violator for damages and/or injunctive relief.

(b) A misdemeanor criminal action against any violator who willfully and without authority closes, changes, or interferes with any headgate, waterbox, or measuring device while it is under the control of the watermaster, or who willfully takes, uses, or conveys water which has been denied him by the watermaster as not allowed under permit or in violation of the provisions of this Ordinance is guilty of a misdemeanor pursuant to Water Code Section 22088. Under Water Code Section 22089.5, a watermaster has the power to arrest any person violating any of the provisions of this article and to give him into the custody of the sheriff or other competent police officer within the county, and immediately thereafter make a complaint before a magistrate against the person so arrested. Every person who violates any of the provisions of this article is guilty of a misdemeanor and is punishable by a fine of not less than twenty-five dollars ($25), nor more than two hundred fifty dollars ($250), or by imprisonment in the county jail for not less than 10 days nor more than six months, or by both such fine and imprisonment pursuant to Water Code Section 22089.

(c) A referral to the Madera County District Attorney for prosecution of a misdemeanor criminal action against any violator without authority of the owner or managing agent, and with intent to defraud, take water from any canal, ditch, flume, or reservoir used for the purpose of holding or conveying is guilty of a misdemeanor under California Penal Code Section 592. If the total retail value of all the water taken is more than four hundred dollars ($400), or if the defendant has previously been convicted of an offense under Penal Code Section 592 or any former section that would be an offense under Section 592, or of an offense under the laws of another state or of the United States that would have been an offense under this section if committed in this state, then the violation is punishable by imprisonment in the county jail for not more than one year, or in the state prison.

__.100.100 SEVERABILITY:

If any section, subsection, sentence, clause or phrase of this Chapter is for any reason held to be illegal, invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions hereof. The Board hereby declares it would have passed this Chapter and each section, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases are declared illegal, invalid or unconstitutional.

Attachment G: Groundwater Banking Plan

The District is currently working on a Groundwater Banking Plan. The District will be implementing a groundwater banking program at the Madera Ranch. The District is in the process of completing the final permitting requirements. This project would include facilities to store water in and recover water from the underlying aquifer. The proposed water bank would have a total storage capacity of 250,000 acre-feet and could recharge or recover up to 55,000 acre-feet of water annually. When adopted, the Groundwater Banking Plan will be inserted in this Attachment G.

Attachment H: Annual Potable Water Quality Report – Urban

The District does not serve Urban customers.

Attachment I: Notices of District Education Programs and Services Available to Customers

The District has documented Education Programs and Services and grower resources are available on the District website:
http://www.madera-id.org/index.php/information-for-growers

MID Stream Monitor

THE MISSION OF MADERA IRRIGATION DISTRICT is to obtain and manage affordable surface water and groundwater supplies in a manner which will ensure the long-term viability of irrigated agriculture in the District.

MID OFFICE
12152 ROAD 28 1/4
MADERA, CA 93637

CUSTOMER SERVICE
(559) 673-3514

OPERATIONS
(559) 673-9241

WEBSITE
www.madera-id.org

Thomas Greci
General Manager

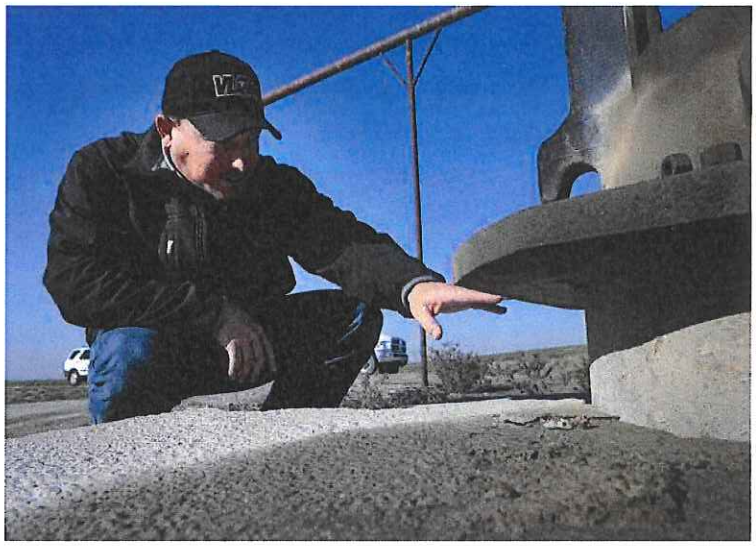
Jill Low
Assistant General Manager / Chief of Finance & Administration

Dina Cadenazzi Nolan
Chief Engineer / Madera Ranch Project Manager

John Bese
Chief Operations & Maintenance

March 2013
this issue

MADERA IRRIGATION DISTRICT IS ASSISTING IN FINDING SOLUTIONS TO WEST MADERA COUNTY SUBSIDENCE



Source: Fresno Bee.com

Madera Irrigation District (MID) is working with neighboring irrigation districts, State agencies, Federal agencies, and growers to solve an imminent problem in western Madera County, subsidence. Studies, recently completed by the United States Bureau of Reclamation and the California Department of Water Recourses, show land in western Madera County has sunk nearly two feet between 2008 and 2010 and is continuing to subside today. The cause of subsidence is being attributed to an increase in deep well pumping below the Corcoran Clay layer. Subsidence is affecting local, State, and Federal infrastructure including roads, highways, the San Joaquin River, and the Eastside Bypass, which is a flood conveyance facility. Central California Irrigation District (CCID) Manager Chris White, who has been spearheading the effort of finding a local solution states that "There is a real chance that if subsidence continues, during the next significant flood release we could see significant regional flooding" which would lead to the loss of valuable crops, critical to Madera County's economy, and an increased risk to public safety.

MID's staff and Directors have committed to support the development of a local solution to this significant problem facing Madera County.

Franchi Flume Gate Project

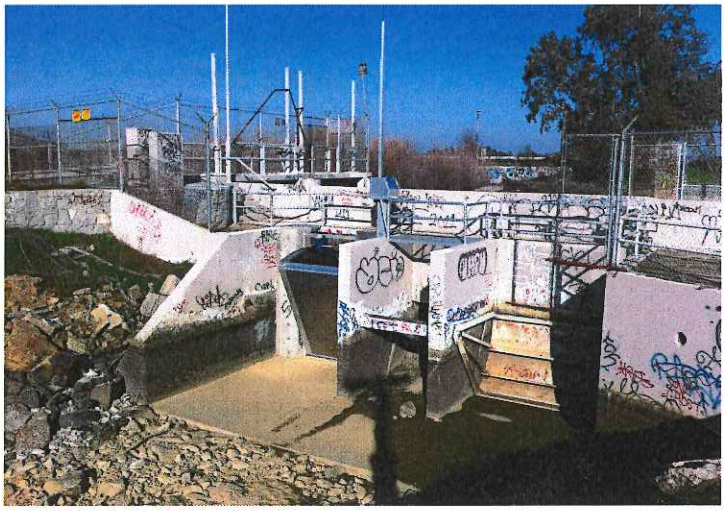
The Franchi Dam is the District's main diversion point off of the Fresno River and diverts approximately 25% of MID's water supply. This was an ideal location for an automated gate because of the high volume of water being diverted and the greater potential for improved operational control, flow measurement, and cost savings.

MID purchased the Rubicon Flume Gate under the 2011 U.S. Bureau of Reclamation (USBR) Field Services Grant. The gate was designed to fit into the existing concrete structure with minor modification. MID staff assisted the Rubicon field technicians with the installation and provided additional safety and vandalism protection improvements. Currently, this is the largest flume gate in North America. The gate automatically opens and closes to maintain a constant flow within +/- 2.5% accuracy, regardless of varying upstream water level. In addition, the gate can be remotely controlled via the web based Supervisory Control and Data Acquisition (SCADA) system. When grant funds become available, MID plans to install more flume gates with SCADA control at other key locations throughout the District.

Above: Downstream view of the original gate at Franchi Dam

Above: Downstream view of the open flume gate during installation

Above: Top view of new safety railing, catwalk, and vandalism protection enclosure



Above: Downstream view of the closed flume gate

MEET THE MAINTENANCE DEPARTMENT

MID's Maintenance Department has sixteen full-time employees. The skills and experience of the group allow our Maintenance Department to complete all the jobs necessary to upkeep and maintain MID's facilities. With years and years of experience, the Maintenance Department can tackle any job, big or small. The Maintenance Department includes the following employees:

Maintenance Foreman
- Steve Atilano - 35 years

Equipment Operators
- Dwight Clancy - 20 years
- Dan Rodriguez - 26 years
- Luis Gallardo - 11 years

Maintenance III
- Adan Garnica - 25 years
- Martin Barrerras - 3 years
- Brian Wright - 2 years

Maintenance II
- Anthony Bates - 5 years
- Daniel Brizendine - 5 years

Ditchtender IV / Maintenance
- Alfred Contreras - 31 years

Maintenance I
- Efrain Alvarez - 2 years

Spray Applicators
- Felix Arreazola - 14 years
- Dan Freeman - 14 years

Lead Mechanic
- Jim Tousounis - 10 years

Mechanic
- Mike Van Tassel - 6 years

Welder
- Walter Walker - 15 years

Storekeeper
- Jackie Christensen - 17 years

Left to Right: Alfred Contreras, Daniel Rodriguez, Daniel Brizendine, Walter Walker, Jackie Christensen, Efrain Alvarez, Brian Wright, Adan Garnica, Felix Arreazola, Martin Barrera, Steve Atilano, Jim Tousounis.
Not Pictured: Dwight Clancy, Dan Freeman, Anthony Bates, Mike Van Tassel, Louie Gallardo

PIPELINE COST SHARE PROJECT

MID maintenance staff constructed approximately 420 lineal feet of 42-inch diameter plastic irrigation pipe and concrete inlet structure as a cost share project. This project took 4 maintenance workers and 2-3 equipment operators approximately 5 weeks to complete. The project proponent was pleased to have the ability to continue construction of their own project.

BOARD OF DIRECTORS

The Board of Directors meet every 1st and 3rd Tuesday of the month at 11:00 a.m.

Division 1
THOMAS PETRUCCI

Division 2
RICK COSYNS

Division 3
JIM CAVALLERO

Division 4
GARY BURSEY
Chairman

Division 5
CARL JANZEN
Vice Chairman

Secretary to the Board
ANDREA SANDOVAL

For comments, questions, or story ideas, please contact Andrea Sandoval, Editor at (559) 673-3514 or asandoval@madera-id.org

Madera Irrigation District Annual Grower's Luncheon

Thursday, March 14, 2013
11:00 a.m. - 1:00 p.m.
Hatfield Hall
Madera District Fairgrounds
1850 West Cleveland Avenue
Madera, CA 93637

Please RSVP to (559) 673-9241
or email at myram@madera-id.org

GROWERS URGED TO SIGN UP FOR WATER NOW!

Although a start date for crop water delivery has **not** been set by the District Board of Directors, you can sign up for water now! District staff is currently accepting crop water applications for the 2013 delivery season. At the same time you apply, please confirm with staff that your account is current with billing and contact information and that all your parcels are included on your application. There will be a new look to your crop water statement this year making it easier to read and to better assist you with record keeping of water usage by turnout and date information. To avoid a penalty fee, please sign up for water no later than Friday, May 31, 2013, 4:30 p.m. whether you plan to use water or not.

Pesticide Safety Trainings For Agricultural Workers

- **Free:**
  - The trainings are provided free of charge!
- **Convenient:**
  - Trainings can be conducted any time and at any location!
- **Documented:**
  - Trained farm laborers receive Farm Worker Safety EPA Blue Card!
  - Growers, Contractors receive list of trained workers!

An easy and convenient way to comply with the Worker Protection Standard!

Please contact Dolly Lopez for a free training at:

Tel:
(559) 662-0100 ext. 17
Email:
blopez@cvoc.org
Fax:
(559) 662-0244

Central Valley Opportunity Center

455 S Pine St Suite 101
Madera, CA 93637

Entrenamientos en el Estándar Para la Protección de Trabajadores Agricola

- **Gratis:**
  - Los entrenamientos son gratis!
- **Conveniente:**
  - Entrenamientos puede llevar a cabo cualquier hora del día o noche, incluyendo fines de semana!
- **Documentado:**
  - Trabajadores entrenados reciben la tarjeta azul de la EPA!
  - Contratistas reciben una lista de trabajadores entrenadas!

Pregunte por Dolly Lopez:

Tel:
(559) 662-0100
Email:
blopez@cvoc.org
Fax:
(559) 662-0244

Central Valley Opportunity Center

455 S Pine St Suite 101
Madera, CA 93637

WATER SUPPLY CUTS HURT US ALL

Federal Biological Opinions
Dec. 7, 2012 – Feb. 7, 2013 (62 days)

Farmers throughout the San Joaquin Valley are anxious for the start of another growing season. Hard work, long days, fertile soils and plentiful water come together to produce half of the nation's fruits and vegetables. But today a significant portion of that water has been lost due to poor regulatory decisions intended to help fish. Water that might have grown a peach or cantaloupe…broccoli, peppers or walnuts…as well as feed for hungry livestock…won't be used to grow our food. Water supply cuts in just two months sent 727,863 acre-feet – **237 billion gallons** – of water to the ocean.

Sadly, these regulations aren't working to protect the fish they were intended to help. It's time we take a sensible look at how we provide for the ecosystem while supporting our farms and jobs and people - and our nation's food supply.

237 billion gallons
727,863 acre-feet lost to mandated water supply cuts

25 million
Number of Californians that rely on the Delta for a portion of their water supply

$2.2 billion
Economic impact from farm production

12,386
Farm jobs

726,000
Number of people who could have eaten for a year on food grown with this water

$873 million
Value of crops that could have been grown

4.2 million
People whose household water needs could have been met for a full year with this water

$109 million
Cost to replace lost water

260,000
Acres of farmland - 8X the size of San Francisco - could have been irrigated for a full year with this water

228
Number of Delta smelt that caused water supply cuts

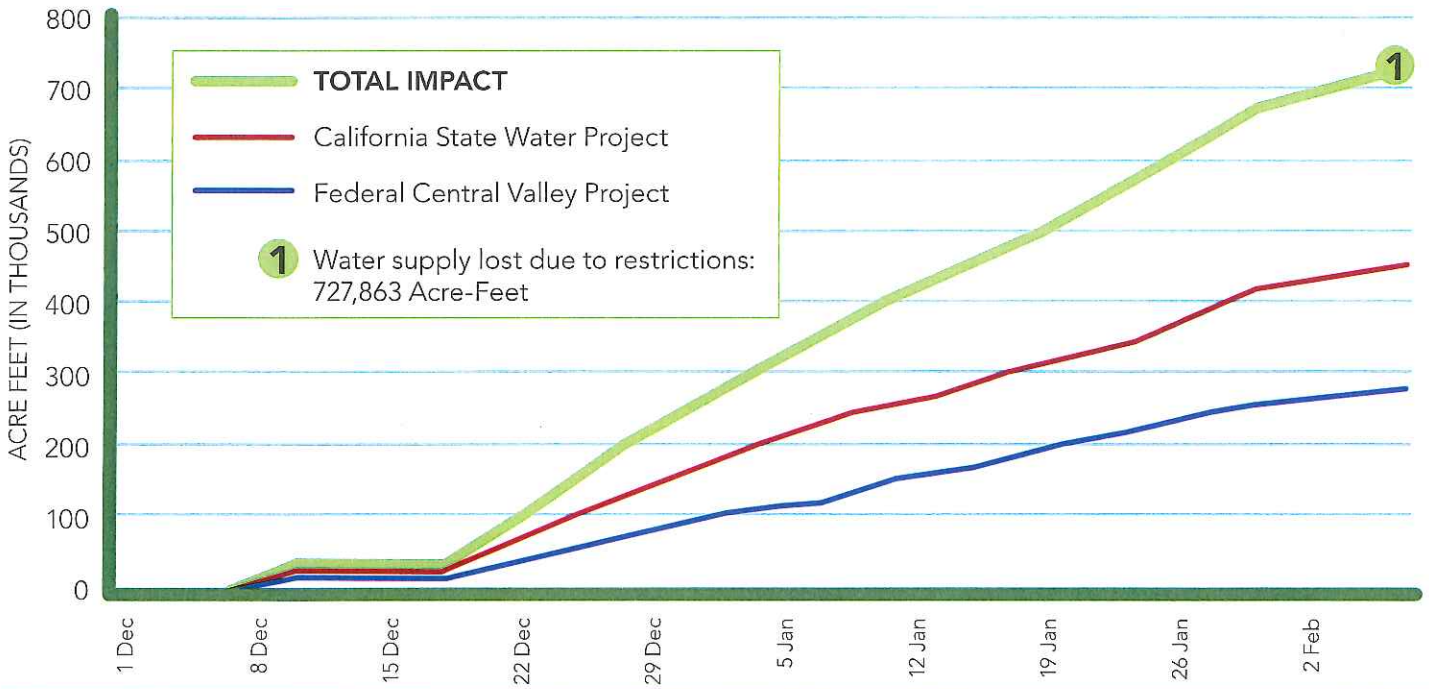
More information available at farmwater.org. Produced by California Farm Water Coalition. © 2013

WATER SUPPLY RELIABILITY

CVP SOUTH OF DELTA DELIVERIES

SOURCE: San Luis & Delta-Mendota Water Authority

62 DAYS OF WATER SUPPLY CUTS



SOURCE: San Luis & Delta-Mendota Water Authority

More information available at farmwater.org.

FRIANT WATER AUTHORITY

FRIANT Waterline

April 2013

Volume 25, No. 228

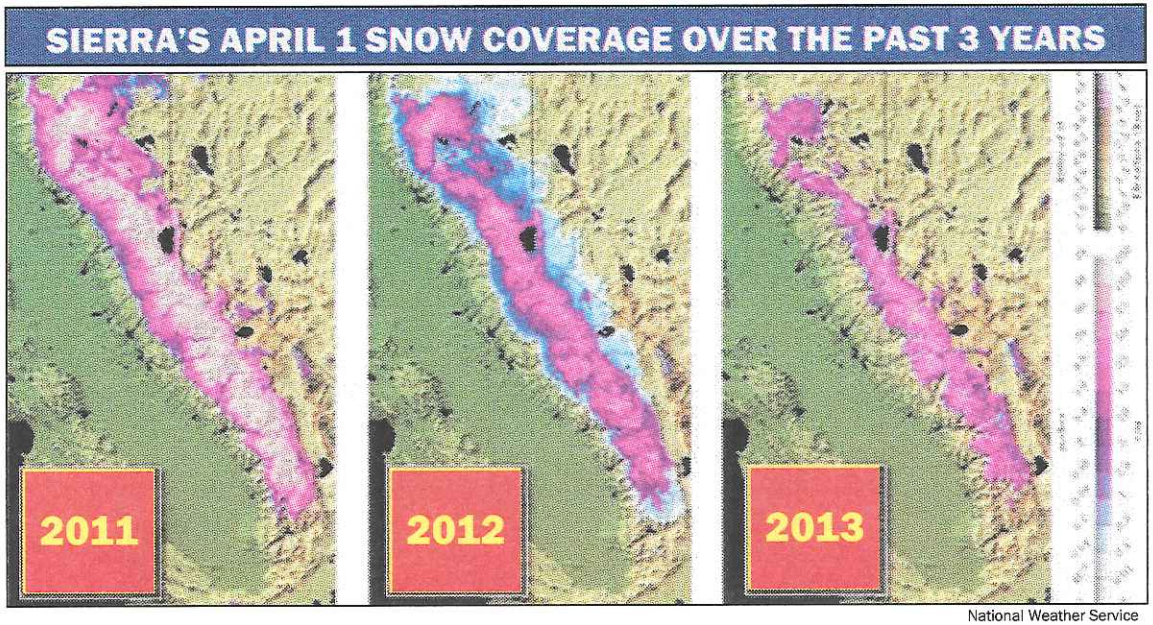
Water Supply Reduced

Reclamation Cuts Friant's Class 1 Allocation To 55%

Promising early winter conditions have turned into an arid late winter/spring and now are promising a summertime Friant Division surface water supply that will seem just plain parched.

The driest January-through-March precipitation conditions and discouraging April 1 Sierra Nevada snowpack data have prompted the U.S. Bureau of Reclamation to make a big cut in the Friant Division's allocation of Central Valley Project water.

Reclamation's Area Manager in Fresno, Michael Jackson, announced April 5 that Friant's firm Class 1 water supply declaration is being reduced to 55% of contract amounts from an initial supply declaration of 65%



National Weather Service

feet of water to Class 1 users year. Class 2 water is only made feet of water under Class 1 con-

West Side Reels From CVP Cutback

While the Sierra Nevada's diminishing snowpack and taking a toll on the Friant Division's supply, the tiny Delta smelt continues to do a number on the amount of water available to Central Valley Project users along the San Joaquin Valley's West Side.

That number is now 20% availability of CVP supplies to contractors in the San Luis Unit and districts – except the San Joaquin River Exchange Contractors – along the Delta-Mendota Canal.

DRY WINTER

The decrease from an already

2013 CALENDAR

JAN

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEB

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					1	2
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17	18	19	20	21	22	23
24	25	26	27	28		

MAR

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31						

APR

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21	22	23	24	25	26	27
28	29	30				

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30						

JUL

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AUG

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SEP

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
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NOV

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17	18	19	20	21	22	23
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DEC

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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

USA North Dig Safely.

811/1-800-227-2600
In CA & NV - 2 working days.

Color Code for:

Marking Excavation Sites & Underground Facilities

PROPOSED EXCAVATION	TEMPORARY SURVEY MARKINGS
ELECTRIC	GAS-OIL-STEAM CHEMICAL
COMMUNICATION -CATV	WATER
RECLAIMED WATER -IRRIGATION -SLURRY	SEWER -STORM DRAIN

811 USA North Dig Safely.

Call Before You Dig!
In CA & NV - 2 working days.

811/1-800-227-2600

Attachment J: District Agricultural Water Order Form

WATER ORDER

MADERA IRRIGATION DISTRICT

START ☐ STOP ☐ CHANGE ☐ SWITCH ☐

USER _____

ORDERED BY _____

DATE _____ TIME _____

DITCH _____

T.O. NO. _____

REMARKS _____

_____

_____

_____

DITCHTENDER _____ BY _____

DATE RECEIVED _____ TIME _____

Attachment K: Drainage Problem Area Report

Madera Irrigation District is not identified as a drainage problem area in the report titled "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)."

Addendum C

Information Required of Contractors Located in a Drainage Problem Area

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

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

2. Reclamation districts in the **Westlands subarea**: James Irrigation District, Tranquillity Irrigation District, and Westlands Water District.

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

4. Reclamation districts in the **Kern subarea**: Alpaugh Irrigation District.

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

1. Source control
2. Land retirement
3. Drainage water treatment
4. Drainage water reuse
5. Shallow groundwater pumping
6. Evaporation ponds

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

Attachment L: 2012 Crop Water Distribution Policy

MADERA IRRIGATION DISTRICT
2012 Crop Water Distribution Policy
ADOPTED – April 10, 2012

DISTRICT MISSION STATEMENT

TO OBTAIN AND MANAGE AFFORDABLE SURFACE AND GROUND WATER SUPPLIES IN A MANNER WHICH WILL ENSURE THE LONG-TERM VIABILITY OF IRRIGATED AGRICULTURE IN THE DISTRICT.

Operations Office Hours:	**Water Dept. Hours:**
Monday thru Friday	7:00 a.m.- 5:00 p.m.
Saturday, Sunday and Holidays, Closed	Contact Ditchtenders
Application Period:	
Monday thru Friday, excluding Holidays	
Beginning	**January 17, 2012**
Ending	**May 31, 2012**
Late Application Penalty Period Beginning	**June 1, 2012**
Water Orders:	**Water Season:**
Water Orders accepted	**May 7, 2012**
Deliveries Begin	**May 21, 2012**
Deliveries End (*approximately*)	**August 31, 2012, subject to change**

WATER ORDERS SHALL NOT BE PLACED ON THE DISTRICT'S ANSWERING MACHINE OR ON THE DITCHTENDER'S CELL PHONE VOICE MAIL. (District Rules and Regulations Section #6.05)

CROP WATER CHARGES AND TOLLS:	**2012**
Standby Charges:	
Regular and Subordinate Lands with District Service	**$15/acre**
Flat Rate Parcel	**$15/parcel**
Other lands receiving water (ex.:opm)	**$15/acre**
Basic Crop Water Tolls:	
COST OF SERVICE WATER (REGULAR, ORIGINAL LANDS)	**$72.50/AF**
Late Application Penalty	**+$77.50/AF or $150/af after 05/31**
Operational Management Water	**$72.50/AF**
SUBORDINATES:	
Subordinate Cost of service (regular)	*NOT AVAILABLE*
Subordinate Insurance Water – Prepaid 1	*$340.00/AF Note: NO TRANSFERS OF ANY TYPE ALLOWED*
Subordinate Insurance Water – Prepaid 2	*$225.00/AF*
Other Water Tolls and Fees:	
Hardship Water	**NOT AVAILABLE**
District Conveyance Charge	**$ 55.00/AF**
Construction Water	**$250.00/DAY**

Flat Rate Water:	**2012**	**Down Payment**
0.01 acres thru 1.49 acres	**$ 308.00**	**$ 154.00**
1.50 acres thru 2.49 acres	**$ 528.00**	**$ 264.00**
2.50 acres thru 3.49 acres	**$ 716.00**	**$ 358.00**
3.50 acres thru 4.49 acres	**$ 920.00**	**$ 460.00**
4.50 acres thru 5.49 acres	**$1,124.00**	**$ 562.00**
5.50 acres thru 5.99 acres	**$1,226.00**	**$ 613.00**

50% down payment is required at time of application. The balance will be billed on June 29, 2012 and will become delinquent and penalized if not paid by 3:00 p.m. on July 31, 2012. Flat rate users must recognize a **15 day period** between irrigations. Flat Rate users wishing to irrigate on an eight (8) day cycle, must pay a second equivalent fee at time of application. Any Flat Rate user application accepted after June 30 will be responsible for the entire annual fee.

Payment for Crop Water:

Payments are due upon receipt of the monthly billings and will become delinquent on the LAST BUSINESS DAY OF THE MONTH following the month of usage. In order to prevent a 2% penalty charge on the unpaid balance, ***PAYMENTS MUST BE RECEIVED IN THE OFFICE BY 3:00 P.M. ON THE LAST BUSINESS TUESDAY OF THE MONTH. POSTMARKS ARE NOT ACCEPTABLE AS EVIDENCE OF TIMELY PAYMENT. DUE***

DATES ARE: June 26th, July 31st; August 28th; September 25th; and October 30th. Water service will be terminated ON THE LAST DAY OF THE MONTH AND OR ON THE LAST FRIDAY OF THE MONTH if payment is not received by 3:00 p.m. on the DELINQUENT DATE. Returned checks will result in a $30 returned check charge to the maker. If a second check is returned by the same maker, no further checks will be accepted and all future payments must be in the form of cash, cashiers check, certified check or money order.

Transfer of Water: Water users are entitled to take delivery of District water supplies onto the land described on their Crop Water Applications. Completion of an Application and payment of Standby Charges do not result in an allocation of or entitlement to a specific quantity of water. Therefore, **no** transfers of district supplied water by water users or landowners are permitted.

POLICIES:

1. **CROP WATER ORDERS WILL NOT BE TAKEN AFTER 2:00 PM ON ANY DAY FOR STARTS OR STOPS THE FOLLOWING DAY. SECTION 6.03 OF THE DISTRICT RULES AND REGULATIONS CONTINUE TO APPLY.**

2. **WATER DELIVERY MUST BE TAKEN FOR A MINIMUM 24-HOUR PERIOD UNLESS ARRANGEMENTS CAN BE MADE WITH A DITCHTENDER THAT DO NOT RESULT IN SPILLS.**

3. **POWER OUTAGES AND ADVERSE WEATHER CONDITIONS THAT DISRUPT DELIVERIES WILL NOT RELIEVE A WATER USER FROM BEING CHARGED FOR UP TO 24 HOURS OF WATER ON ORDER IN THE SYSTEM.** *(Rules and Regulations, Section 6, #6.07, Water Ordering Procedures,)*

4. **MULTIPLE LANDOWNERS ON THE SAME TURNOUT AND METER THAT RUN CONCURRENTLY WILL HAVE WATER USE CHARGED ON A PRORATED BASIS PER ACRE. ALL LANDS ELIGIBLE TO RECEIVE WATER ON THE SAME PARCEL OR TURNOUT WILL BE CHARGED WATER ON A PRORATED BASIS.**

5. **LANDOWNERS HAVE THE SOLE RESPONSIBILITY FOR THE FINANCIAL OBLIGATIONS ON THEIR PROPERTY. IF THE LAND IS LEASED OUT AND THE LESSEE DOES NOT PAY THE WATER CHARGES IN FULL, THE AMOUNT OWING WILL BE ADDED TO AND BECOME PART OF THE ANNUAL ASSESSMENT LEVIED ON THE LAND (CALIFORNIA STATE WATER CODE SECTION 25806). LETTERS OF NONFINANCIAL RESPONSIBILITY FROM LANDOWNERS *WILL NOT* BE ACCEPTED BY THE DISTRICT.**

Prerequisites prior to Crop Water Application:

1. **ALL DELINQUENT CROP WATER CHARGES, STANDBY FEES, ASSESSMENTS, CERTIFICATES OF SALE, OR ANY OTHER CHARGES ON ANY, AND, ALL PARCELS OWNED AND/OR LEASED BY THE GROWER MAKING APPLICATION *MUST BE PAID IN FULL PRIOR TO ACCEPTANCE OF THE CROP WATER APPLICATION BY THE DISTRICT*.**

2. The second installment of the 2012 Assessment must be paid in full **no later than June 20, 2012** to continue delivery of crop water. If **second installment is not paid, crop water delivery will be discontinued.**

3. **Accounts *WILL NOT* be combined or segregated during or after the crop water season.**

4. **Growers and lessees are responsible for including all parcels and completing all crop water applications** associated with their individual ownerships or leases. It is not the responsibility of District staff to collect this information for you.

5. Crop water applications must be signed by the landowner(s) or an authorized agent of the landowner. Fax signatures are accepted.

6. Any exceptions to the above terms and conditions must be appealed to the Board of Directors.

If the demand exceeds capacity of the system, this may require the distribution system to be operated on a restricted basis which means that new water starts may not be made until a shut off occurs. When the system is running in a capacity mode, there is a seven (7) day run time on each turnout. The District will maintain a priority list for starts during such periods and starts will follow a first come first serve basis.

Growers need to be aware that water may be available earlier than a start request date and time. This water would be first offered to the grower at the top of the priority list. If the water user is unable to take the water at that time, then the water will be offered to the next user in line. The District cannot hold the water in the system just to accommodate a start order.

The District will strive to be as flexible in our operations as possible but in order to minimize spill and to extend the water season as long as possible, cooperation from the water user will also be necessary to get through the season.

Attachment M: San Joaquin Valley Groundwater Basin (DWR)

San Joaquin Valley Groundwater Basin
Madera Subbasin

- Groundwater Subbasin Number: 5-22.06
- County: Madera
- Surface Area: 394,000 acres (614 square miles)

Basin Boundaries and Hydrology

The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

The Madera subbasin consists of lands overlying the alluvium in Madera County. The subbasin is bounded on the south by the San Joaquin River, on the west by the eastern boundary of the Columbia Canal Service area, on the north by the south boundary of the Chowchilla Subbasin, and on the east by the crystalline bedrock of the Sierra Nevada foothills. Major streams in the area include the San Joaquin and Fresno Rivers. Average annual precipitation is 11 inches throughout the majority of the subbasin and 15 inches in the Sierran foothills

Hydrogeologic Information

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide. It is filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the series of rivers, lakes, sloughs, and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley.

Water Bearing Formations

Hydrogeologic units in the Madera Subbasin consist of unconsolidated deposits of Pleistocene and Holocene age. These deposits are divided into continental deposit of Tertiary and Quaternary age, and continental deposits of Quaternary age. Continental deposits of Quaternary age include older alluvium, lacustrine and marsh deposits and younger alluvium. The continental deposits of Quaternary age crop out over most of the area and yield probably more than 95 percent of the water pumped from wells.

Although younger alluvium and flood-basin deposits yield small quantities of water to wells, the most important aquifer in the area is the older alluvium. It consists mostly of intercalated lenses of clay, silt, sand, and some gravel.

The lacustrine and marsh deposits (which contain the E-clay) do not crop out in the area but occur within the older alluvium and underlie the western portion of the subbasin at depths ranging between 150 and 300 feet (DWR 1981). These deposits restrict the vertical movement of ground water and divide the water-bearing deposits into confined and unconfined aquifers. Continental deposits of Tertiary and Quaternary age include the Ione Formation which outcrops on the Subbasin's eastern margin. This unit may yield small quantities of water to wells but is not an important aquifer.

The estimated average specific yield of this groundwater subbasin is 10.4 percent (based on DWR San Joaquin District internal data and that of Davis 1959).

Restrictive Structures

Groundwater flow is generally southwestward in the eastern part of the subbasin and to the northwest in the southern portion, away from the recharge area along the San Joaquin River. During 1999, a groundwater mound occurred in the northwest portion of the subbasin with accompanying depressions to the north and south, and a large depression in the subbasin's southeast corner (DWR 2000). Based on current and historical groundwater elevation maps, groundwater barriers do not appear to exist in the subbasin.

Groundwater Level Trends

Changes in groundwater levels are based on annual water level measurements by DWR and cooperators. Water level changes were evaluated by quarter township and computed through a custom DWR computer program using geostatistics (kriging). On average, the subbasin water level has declined nearly 40 feet from 1970 through 2000. The period from 1970 through 1978 showed steep declines totaling about 30 feet. The nine-year period from 1978 to 1987 saw stabilization and rebound of about 25 feet, taking the water levels close to where they were in 1970. 1987 through 1996 again showed steep declines, bottoming out in 1996 at about 45 feet below 1970 levels. Water levels rose about 8 feet from 1996 to 2000. Water levels declines have been more severe in the eastern portion of the subbasin from 1980 to the present, but the western subbasin showed the strongest declines before this time period.

Groundwater Storage

Estimations of the total storage capacity of the subbasin and the amount of water in storage as of 1995 were calculated using an estimated specific yield of 10.4 percent and water levels collected by DWR and cooperators. According to these calculations, the total storage capacity of this subbasin is estimated to be 18,500,000 af to a depth of 300 feet and 40,900,000 af to the base of fresh groundwater. These same calculations give an estimate of 12,600,000 af of groundwater to a depth of 300 feet stored in this subbasin as of 1995 (DWR 1995). According to published literature, the amount of stored groundwater in this subbasin as of 1961 is 24,000,000 af to a depth of $\leq$ 1000 feet (Williamson 1989)

Groundwater Budget (Type B)

Although a detailed budget was not available for this subbasin, an estimate of groundwater demand was calculated based on the 1990 normalized year and data on land and water use. A subsequent analysis was done by a DWR water budget spreadsheet to estimate overall applied water demands, agricultural groundwater pumpage, urban pumping demand and other extraction data.

Natural recharge was estimated to be 21,000 af. Artificial recharge and subsurface inflow were not determined. Applied water recharge was calculated to be 404,000 af. Annual urban extraction and annual agricultural extraction were estimated as 15,000 af and 551,000 af, respectively. There were no other extractions, and subsurface outflow was not determined.

Groundwater Quality

Characterization. The majority of this subbasin is generally a calcium-sodium bicarbonate type, with sodium bicarbonate and sodium chloride at the western margin of the subbasin along the San Joaquin River (Mitten 1970). TDS values range from 100 to 6,400 mg/L, with a typical range of 200 to 400 mg/L. The Department of Health Services, which monitors Title 22 water quality standards, reports TDS values in 40 wells ranging from 100 to 400 mg/L, with an average value of 215 mg/L. EC values range from 180 to 600 μmhos/cm, with an average value of 251 μmhos/cm (based on 15 wells).

Impairments. There are localized areas of high hardness, iron, nitrate, and chloride. One well is currently undergoing GAC filtration for the removal of EDB/DBCP (Glos 2001).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	44	0
Radiological	44	0
Nitrates	43	1
Pesticides	46	3
VOCs and SVOCs	45	0
Inorganics – Secondary	44	7

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 40 – 4,750	Average: 750 – 2,000
	Total depths (ft)	
Domestic		
Municipal/Irrigation	Range: 100 - 600	

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR (incl. Cooperators)	Groundwater levels	378 Semi-annually
Department of Health Services (including cooperators)	Title 22 water quality	127 Varies

Basin Management

Groundwater management:	Discussions taking place between purveyors to create draft AB3030 Plan.
Water agencies	
Public	Gravelly Ford W.D., Madera I.D.; Root Creek W.D.
Private	None

References Cited

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_____. Well completion report files.

_____. 1981. *Depth to Top of Corcoran Clay.* 1:253,440 scale map.

_____. 1995. Internal computer spreadsheet for 1990 normal computation of net water demand used in preparation of DWR Bulletin 160-93.

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Additional References

California Department of Water Resources (DWR). 1980. Bulletin 118-80, *Ground Water Basins in California*.

_____. 1994. Bulletin 160-93. *California Water Plan Update, Vol. 1.*

Errata

Changes made to the basin description will be noted here.