DELANO – EARLIMART IRRIGATION DISTRICT

July 16, 2014

Agricultural Water Use Efficiency Unit
Statewide Integrated Water Management
901 P Street, Room 313
Sacramento, CA 94236-0001

To Whom It May Concern:

Please find enclosed the adopted and approved Water Management Plan (Plan) for the Delano-Earlimart Irrigation District (District). We believe that our Plan is fully responsive to the State's requirements for an acceptable Agricultural Water Management Plan as required by Water Efficiency Act of 2009 and request your approval as such.

Please call the undersigned should you have any questions.

Sincerely,

Dale Brogan, General Manager
Delano-Earlimart Irrigation District

enclosure

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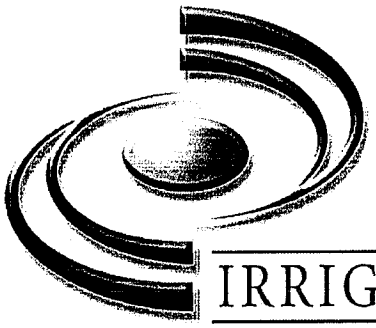
email deid@deid.org



Delano-Earlimart Irrigation District
Water Management Plan
2008 Criteria

Prepared by:

Dale R. Brogan
General Manager

Submitted to:

United States Department of the Interior
Bureau of Reclamation
South Central California Area Office
1243 N Street
Fresno, California

Submitted: October 30, 2009

Index

Section 1: Description of the District

District Name: Delano-Earlimart Irrigation District

Contact Name: Dale Brogan

Title: General Manager

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A. History

1. *Date district formed:* 1938 *Date of first Reclamation contract*: 1951
   Original size (acres): 32,416 *Current year - (2008):* 54,890

2. *Current size, population, and irrigated acres*

	(2008)
Size (acres)	54,890
Population served	NA
Irrigated acres	49149

3. *Water supplies received in current year*

Water Source	*AF*
Federal non-Ag water (Tbl 1)	319
Federal agricultural water (Tbl 1)	110162
State water (Tbl 1)	0
Other Wholesaler (define) (Tbl 1)	0
Local surface water (Tbl 1)	0
Upslope drain water (Tbl 1)	0
District ground water (Tbl 2)	0
Banked water (Tbl 1)	0
Transferred water (Tbl 6)	0
Recycled water (Tbl 3)	0
Other (define) (Tbl 1)	0
Total	110481

4. *Annual entitlement under each right and/or contract*

	AF	*Source*	*Contract #*	*Availability period(s)*
Reclamation Urban AF/Y				
Reclamation Ag AF/Y	183,300	CVP-Friant	175r-3327-LTR1	March-February
Other AF/Y				

5. *Anticipated land-use changes*
   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.

Original Plan - 1993		*Previous Plan - 2002*		*Current Plan - 2008*	
Crop Name	*Acres*	*Crop Name*	*Acres*	*Crop Name*	*Acres*
Grapes	26306	Grapes	31390	Grapes	29426
Almonds	5245	Almonds	6625	Almonds	9591
Other Nut Crops	2412	Other Nut Crops	3261	Other Nut Crops	4493
Alfalfa	3340	Alfalfa	1229	Alfalfa	725
Cotton	5622	Cotton	40	Cotton	0
Tree Fruit	1835	Tree Fruit	1436	Tree Fruit	1504
Citrus	1239	Citrus	1379	Citrus	1966
Field/Row Crops	2251	Field/Row Crops	1221	Field/Row Crops	1444
Not farmed/irrigated	7813	Not farmed/irrigated	9893	Not farmed/irrigated	5739
Other (<5%)		*Other (<5%)*		*Other (<5%)*	
Total	56063	*Total*	56474	*Total*	54888

(See Planner, Chapter 2, Appendix A for list of crop names)

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

Original Plan - 1993		*Previous Plan - 2002*		*Current Plan - 2008*	
Irrigation Method	*Acres*	*Irrigation Method*	*Acres*	*Irrigation Method*	*Acres*
Drip/Micro/Fanjet	6682	Drip/Micro/Fanjet	23587	Drip/Micro/Fanjet	31704
Sprinkler	3712	Sprinkler	2072	Sprinkler	1559
				Flood	11799
				Border	60
				Furrow	3071
Other	45669	*Other*	30815	*Other*	
Total	56063	*Total*	56474	*Total*	54888

(See Planner, Chapter 2, Appendix A for list of irrigation system types)

B. Location and Facilities

See Attachment A for points of delivery, turnouts (internal flow), and outflow (spill) points, measurement locations, conveyance system, storage facilities, operational loss recovery system, wells, and water quality monitoring locations

1. Incoming flow locations and measurement methods

Location Name	*Physical Location*	*Type of Measurement Device*	*Accuracy*
Friant-Kern Canal	Mile Post 108.7	Propeller meter	+/– 5%
FKC	M.P. 109.46 west-main (ave.56)	Venturi Meter	+/– 5%
FKC	M.P. 109.46 west-north sub (ave.56)	Propeller meter	+/– 5%
FKC	M.P. 109.46 west-south sub (ave.56)	Propeller meter	+/– 5%
FKC	M.P. 109.46 east-main (ave.56)	Propeller meter	+/– 5%
FKC	M.P. 109.46 east-sub (ave.56)	Propeller meter	+/– 5%
FKC	M.P. 111.56 west-main (ave.40)	Venturi Meter	+/– 5%
FKC	M.P. 111.56 west- sub (ave.40)	Propeller meter	+/– 5%

FKC	M.P. 111.56 east (ave.40)	Venturi Meter	+/– 5%
FKC	M.P. 112.9-White River wasteway	Parshall flume	+/– 5%
FKC	M.P 113.62 west-main (ave.24)	Venturi Meter	+/– 5%
FKC	M.P 113.62 west-sub (ave.24)	Propeller meter	+/– 5%
FKC	M.P 113.62 east-main (ave.24)	Venturi Meter	+/– 5%
FKC	M.P 113.62 east-sub (ave.24)	Propeller meter	+/– 5%
FKC	M.P. 115.95 main (ave.8)	Venturi Meter	+/– 5%
FKC	M.P. 115.95 sub (ave.8)	Propeller meter	+/– 5%
FKC	M.P. 116.92-east (ave.0)	Venturi Meter	+/– 5%
FKC	M.P. 116.92-west (ave.0)	Propeller meter	+/– 5%
FKC	M.P. 118.45 main (9th ave.)	Propeller meter	+/– 5%
FKC	M.P. 118.45 sub (9th ave.)	Propeller meter	+/– 5%

2. *Current year Agricultural Conveyance System*

Miles Unlined - Canal	*Miles Lined - Canal*	*Miles Piped*	*Miles - Other*
0	0	172	0

3. *Current year Urban Distribution System*

Miles AC Pipe	*Miles Steel Pipe*	*Miles Cast Iron Pipe*	*Miles - Other*
NA	NA	NA	NA

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

Name	*Type*	*Capacity (AF)*	*Distribution or Spill*
D-11	Regulating reservoir	3.4	distribution
D-17	Regulating reservoir	3.3	distribution
D-12	Regulating reservoir	9.7	distribution
D-14	Regulating reservoir	6.1	distribution
Terminal	Regulating reservoir	2.1	distribution

5. *Outflow locations and measurement methods (Agricultural only)*
None

6. *Description of the agricultural spill recovery system*
None-no spill from DEID's closed, pressurized distribution system

7. *Agricultural delivery system operation (check all that apply)*

On-demand	*Scheduled*	*Rotation*	*Other (describe)*
x	x		

8. *Restrictions on water source(s)*

Source	*Restriction*	*Cause of Restriction*	*Effect on Operations*
Millerton Lake	Inflow prorate	Reservoir too small	Limited deliveries to growers
Millerton Lake	Uncontr. /flood flows	Reservoir too small	Loss of schedulable supply
Friant-Kern Canal	Canal capacity prorate	Canal too small	Limited deliveries to growers
San Joaquin River	Restoration flows	Lawsuit settlement	Limited deliveries to growers

9. *Proposed changes or additions to facilities and operations for the next 5 years*

a. Continue to offer pressure-compensation float systems to growers requesting one.
b. Continued development of groundwater recharge and recovery (banking) facilities.

C. Topography and Soils

1. *Topography of the district and its impact on water operations and management*

San Joaquin Valley

The terrain (on the valley floor; the primary agricultural zone) is generally flat or gently sloping. Elevations range from about 200 feet above sea level at the north county line to about 1,000 feet above sea level at the rim of the valley. Most of the valley floor ranges from about 300-500 feet above sea level.

The San Joaquin Valley basin is essentially a deep structural trough from 10,000 to 20,000 feet deep filled with sedimentary materials. Most of the sediment is marine in origin and contains water too saline for use. The upper 3,000 feet of sediments consist of fine and coarse-grained alluvium, which were washed down from the surrounding mountains by the Kern, Tule, Kaweah, Kings and San Joaquin rivers and other small streams, providing a basin of generally excellent soils.

Delano-Earlimart Irrigation District

The District is situated on the eastern part of the San Joaquin Valley, about 10 miles west of the Sierra Nevada foothills. It occupies floodplain and alluvial fans of present streams. Slopes are generally to the west, ranging from about 25 feet to the mile on the east side to 10 to 15 feet to the mile at the western boundary. Highest elevation is about 500 feet above sea level in the southeast corner and the lowest approximately 275 feet in the northwest portion.

The geological sequences of permeable, water-bearing sediments within DEID, from youngest to oldest, are: 1) continental deposits, 2) the Santa Margarita formation, and 3) the Olcese sand.

Sediments that comprise DEID's main groundwater basin are unconsolidated deposits of Tertiary and Quaternary age, including alluvium, lacustrine, deltaic and flood basin deposits of sand and gravel. Thin lenses of silt and clay are scattered throughout the basin at various depths, but are most pronounced in the southwestern and northwestern portions of the basin.

District soils consist of recent alluvial deposits, moderately developed soils underlain by hardpan, and alkali-affected soils. The recent deposits, covering most of the district, are deep, permeable soils of light to medium texture that occupy the alluvial floodplain and fans formed by White River and Rag Gulch. The hardpan soils occupy older alluvial fans in the eastern portion of the District. The alkali soils are found in the lower-lying lands in the western part of the area. The recent alluvial soils and most of the hardpan soils are presently irrigated and are producing good yields of a variety of crops. Detailed soils maps covering the District are included at Tab 5, and are also available from the NRCS-Soil Survey of Tulare County (Internet accessible at www.ca.nrcs.usda.gov/wtulare/index.html).

In 1946, the Bureau made a semi-detailed land classification of the district. The land classes assigned to the district lands represent varying degrees of suitability for irrigation and were determined by evaluation of the factors of soil, topography, and drainage in relationship to adapted crops, productivity and land management. The table below presents the land classification data for the Delano-Earlimart Irrigation District.

LAND CLASSIFICATION*

Land Class	Classification	Percent of Total Area (%)
1	Land capable of producing high yields of any climatically adapted crop at minimum cost.	54.3
2	Slight to moderate restriction in productivity or ease of management because of minor limitations in soil, topography, or damage.	35.2
3	Moderate to severe limitations in soil, topography or damage.	7.8
4	Unsuitable for general cropping because of severe limitations, but has limited utility for special crops.	1.1
6	Unsuitable for irrigation because of extreme limitations.	1.6
	TOTAL	100.0%

* From 1946 U.S. Bureau of Reclamation Land Classification Study.

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

3. *Agricultural limitations resulting from soil problems (Agricultural only)*

Soil Problem	*Estimated Acres*	*Effect on Water Operations and Management*
Salinity	0	NA
High-water table	0	NA
High or low infiltration rates	0	NA
Other (define)	0	NA

D. Climate

1. *General climate of the district service area*
Kern and Tulare counties have three distinct climate zones - valley, mountain, and high desert - within a relatively short distance. Within the valley itself there are two distinct regions with diverse climatic conditions: (1) The valley floor falls in a rain shadow cast by the Coastal Range of mountains; (2) The foothill region elevations on the south and east of the valley generally enjoy more frost-free days than the valley floor, allowing perennials such as citrus to flourish where the thermal belt provides some natural protection against frost.

The Sierra Nevada Mountains to the northeast shut out most of the cold air that flows southward over the continent during winter. The Tehachapi Mountains, forming the southern boundary, act as an obstruction to northwest wind, resulting in heavier precipitation on the windward slopes, high wind velocity over the ridges and, at times, continuing cloudiness in the south end of the valley after skies have cleared elsewhere.

The Climate in the Delano-Earlimart area is generally representative of the entire San Joaquin Valley. During the summer months the days are generally hot and dry with daytime temperatures typically exceeding 95 degrees F and during the winter months the days are generally mild and damp with daytime temperatures typically averaging 40 degrees F. The mean annual temperature at Lake Woollomes, located within and near the south central district border, is 62.2 degrees F. The average

minimum and maximum temperatures are 48.4 degrees F and 76.1 degrees F respectively. The average frost-free period for the entire District is 250 days per year. The mean wind speed for the area is 6.4 miles per hour and the prevailing direction is northwest.

The average seasonal rainfall for the Delano-Earlimart area is 8.48 inches, based on district's estimated by the U.S. Bureau of Reclamation that approximately 3 inches represents the effective precipitation.

The average annual evaporation for the Delano-Earlimart area is 76.4 inches with the greatest evaporation occurring during the months of May, June, July and August.

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Avg Precip.	1.37	1.47	1.43	.98	.31	.09	0	.08	.33	.39	1.12	.91	8.48
Avg Temp.	45.7	51.1	54.1	60.3	67.7	74.8	79.5	77.9	72.6	63.8	52.9	45.8	62.2
Max. Temp.	56.2	63.3	66.8	74.6	83.6	91.3	95.6	93.4	88.1	79.1	65.4	55.7	76.1
Min. Temp	35.6	39.4	42.1	46.2	52.1	58.7	63.3	61.8	56.9	48.5	40.4	35.5	48.4
ETo	1.4	2.1	4.3	6.9	10.2	12.0	12.3	10.6	7.9	5.0	2.4	1.3	76.4

Weather station ID: Hanford *Data period: Year* unknown *to Year* unknown

Average wind velocity: 6.4 miles per hour *Average annual frost-free days:* 250

2. *Impact of microclimates on water management within the service area*
   There are no known micro-climates in the District.

E. Natural and Cultural Resources

1. *Natural resource areas within the service area*

Name	*Estimated Acres*	*Description*
None		

2. *Description of district management of these resources in the past or present*
   NA

3. *Recreational and/or cultural resources areas within the service area*

Name	*Estimated Acres*	*Description*
None		

F. Operating Rules and Regulations

1. *Operating rules and regulations*
   See Attachment C, District Agricultural Water Policy; Municipal and Industrial Water Policy

2. *Water allocation policy (Agricultural only)*
   See Attachment C, District Agricultural Water Policy, page 1

Summary – District water to water users based upon their ability to put the water to reasonable and or otherwise in an imprudent manner.

3. *Official and actual lead times necessary for water orders and shut-off (Agricultural only)*
See Attachment C, District Agricultural Water Policy, Page 2-3

Summary – The District has two separate water ordering requirements for growers:
Water users without float systems:
The District requires that all water orders be placed in person, by telephone, or through the District's web sit and requests that they are made by 9:00 a.m., twenty-four (24) hours in advance. Those orders placed 24 hours in advance will receive priority. Water orders placed after 9:00 a.m. and with less than 24 hours notice will be accepted if possible as determined by the Operations Technician. Water ordered runs continuously until ordered off. Minimum water order duration is twenty-four (24) hours unless the Operations Technician approves a shorter duration in advance, or in case of a verifiable emergency.
Water users with float systems:
Growers that have had a pressure-compensating float system installed on their turnout(s) are allowed to operate that particular turnout(s) through a separate operating valve on the grower's side of the turnout. Growers with float systems may make changes at any time, including weekends and holidays, provided that they notify the District of all water requests and changes twenty-four (24) hours in advance. Notification may be accomplished in person, by telephone, or through the District's web site. An exception to this notification requirement is a change in an existing flow that is less than 100 gpm. Water ordered by growers with float systems run continuously until ordered off. A water order of a duration that is less than twenty-four (24) hours is acceptable provided advance notification has occurred, as described above, or in case of a verifiable emergency.

4. *Policies regarding return flows (surface and subsurface drainage from farms) and outflow (Agricultural only)*
NA-the District has no return flows from water users.

5. *Policies on water transfers by the district and its customers*
See Attachment C, District Agricultural Water Policy, Page 2

Summary - Water users owning or leasing multiple parcels within the District that are eligible for water may transfer water without restriction between those parcels. Transfers between individuals or entities within the District are allowed subject to completion of a water transfer request signed by both parties. Consistent with the District's water conservation and management plan and conjunctive use needs, water users may not transfer, sell or otherwise dispose of any District water outside of the District's boundaries.

G. Water Measurement, Pricing, and Billing

1. *Agricultural Customers*
   a. *Number of farms:* 425
   b. *Number of delivery points (turnouts and connections):* 527
   c. *Number of delivery points serving more than one farm:* 0

d. *Number of measured delivery points (meters and measurement devices):* 527

e. *Percentage of delivered water that was measured at a delivery point:* 100

f. *Delivery point measurement device table (Agricultural only)*

Measurement Type	*Number*	*Accuracy (+/- %)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
Orifices					
Propeller meter	527	+/- 3%	Every 3rd day	< 36 mos.	As needed
Weirs					
Flumes					
Venturi					
Metered gates					
Acoustic doppler					
Other (define)					
Total	527				

2. *Urban Customers*

a. *Total number of connections:* 79

b. *Total number of metered connections:* 79

c. *Total number of connections not billed by quantity:* 0

d. *Percentage of water that was measured at delivery point:* 100

e. *Percentage of delivered water that was billed by quantity:* 100

f. *Measurement device table*

Meter Size and Type	*Number*	*Accuracy (+/-percentage)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
5/8-3/4"					
1"					
1 ½"					
2"	68	+/- 3%	90 days	< 36 mos.	As needed
3"	3	+/- 3%	90 days	< 36 mos.	As needed
4"	8	+/- 3%	90 days	< 36 mos.	As needed
6"					
8"					
10"					
Compound					
Turbo					
Other (define)					
Total	79				

3. *Agriculture and Urban Customers*

a. *Current year agriculture and /or urban water charges - including rate structures and billing frequency*

See Attachment C, District Agricultural Water Policy, page 4-5; Municipal and Industrial Water Policy, page 1-2

b. Annual charges collected from customers (current year data)

Fixed Charges			
Charges ($ unit)	*Charge units ($/acre), ($/customer) etc.*	*Units billed during year (acres, customer) etc.*	*$ collected ($ times units)*
$15.40	$/acre	54,890 acres	$845,307
$26.75	$/acre	54,890 acres	$1,578,089

Volumetric charges (2009 to-date)			
Charges ($ unit)	*Charge units ($/AF), ($/HCF), etc.*	*Units billed during year (AF, HCF) etc.*	*$ collected ($ times units)*
$48.00	$/acre-foot	231 acre-feet	$11,088
$49.50	$/acre-foot	83,450 acre-feet	$4,130,775
$80.25	$/acre-foot	10,199 acre-feet	$818,470
$98.25	$/acre-foot	375 acre-feet	$36,844

See Attachment D, District Sample Bills

c. Water-use data accounting procedures

The District reads meters routinely during the month and at the end of each month for billing. Reading and billing procedures are computerized and stored indefinitely. Following verification of monthly volumetric measurements, data is transferred to the billing department for creation of a monthly statement and collection of billed charges.

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

   Summary - When the demand for District water is greater than the available supply, the supply is distributed evenly among landowners and water users with approved Water Applications on file for the current water year.

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

   See Attachment C, District Agricultural Water Policy, page 1

Section 2: Inventory of Water Resources

A. Surface Water Supply

1. *Acre-foot amounts of surface water delivered to the water purveyor by each of the purveyor's sources*
   See 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 Water Inventory Tables, Table 8

B. Ground Water Supply

1. *Acre-foot amounts of ground water pumped and delivered by the district*
   See Water Inventory Tables, Table 2

2. *Ground water basin(s) that underlies the service area*

Name	*Size (Square Miles)*	*Usable Capacity (AF)*	*Safe Yield (AF/Y)*
San Joaquin Valley Basin (Tule Sub-basin)	733	14,600,000	28,500

3. *Map of district-operated wells and managed ground water recharge areas*
   See Attachment F, District Map of Ground Water Facilities

4. *Description of conjunctive use of surface and ground water*
   Historically, the District has accomplished direct groundwater recharge during surplus water years through operations within White River channel as well as a small 5 acre recharge basin. In 1993, the District purchased an 80 acre parcel specifically for development into a groundwater recharge basin. This new site has been fully developed for groundwater recharge purposes, with five separate cells, and dual methods of introducing water to each cell, either from the District's distribution system or from direct diversions out of White River. In 2007, the District began a pilot project on this site to determine the feasibility of conducting a groundwater banking program. The pilot project now includes a recovery well that was installed in 2009, with plans for additional extraction and monitoring wells to be installed in 2010. The goal is to actively manage both the surface water and groundwater resources of the area for the benefit of District water users.

5. *Ground Water Management Plan*
   See Attachment G, Ground Water Management Plan

6. *Ground Water Banking Plan*
   In progress- the district is in the process of gathering data and information for the groundwater banking pilot project that will be used in developing a Banking Plan. The Banking Plan is not yet available for inclusion in this document.

C. Other Water Supplies

1. *"Other" water used as part of the water supply*
   See the Water Inventory Tables, Table 1

D. Source Water Quality Monitoring Practices

1. *Potable Water Quality (Urban only)*
   NA

2. *Agricultural water quality concerns*: *Yes* __ *No* X
   (If yes, describe)

3. *Description of the agricultural water quality testing program and the role of each participant, including the district, in the program.*
   None presently. Groundwater quality tests are anticipated to be a part of the District's Banking Plan once implemented. Limited groundwater quality analysis will be conducted as part of the groundwater banking pilot project.

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 Water Inventory Tables, Table 5 - Crop Water Needs

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

Crop name	*Total Acres*	*Level Basin - acres*	*Furrow - acres*	*Sprinkler - acres*	*Low Volume - acres*	*Multiple methods - acres*
Information not collected						

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

Customer Type	*Number of Connections*	*AF*
Single-family	NA	
Multi-family		

Customer Type	*Number of Connections*	*AF*
Commercial		
Industrial		
Institutional		
Landscape irrigation		
Wholesale		
Recycled		
Other (specify)		
Other (specify)		
Other (specify)		
Unaccounted for		
Total		

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

Treatment Plant	*Treatment Level (1, 2, 3)*	*AF*	*Disposal to / uses*
NA			
	Total		
Total discharged to ocean and/or saline sink			

5. Ground water recharge/management in current year (Table 6)

Recharge Area	*Method of Recharge*	*AF*	*Method of Retrieval*
District basins	direct	0	NA
	Total		

6. Transfers and exchanges into or out of the service area in current year (Table 6)

From Whom	*To Whom*	*AF*	*Use*
DEID	Shafter-Wasco ID	250	Ag deliveries

7. Trades, wheeling, wet/dry year exchanges, banking or other transactions in current year (Table 6)

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

8. Other uses of water in current year

Other Uses	*AF*
None	

F. Outflow from the District (Agricultural only)

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 Appendix B (include in plan as Attachment L)

1. *Surface and subsurface drain/outflow in current year*

Outflow point	*Location description*	*AF*	*Type of measurement*	*Accuracy (%)*	*% of total outflow*	*Acres drained*
NA						

Outflow point	*Where the outflow goes (drain, river or other location)*	*Type Reuse (if known)*
NA		

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

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

Analyses Performed	*Frequency*	*Concentration Range*	*Average*	*Reuse limitation?*
NA				

Outflow (subsurface drainage) Quality Testing Program

Analyses Performed	*Frequency*	*Concentration Range*	*Average*	*Reuse limitation?*
NA				

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 is a participant in the Southern San Joaquin Valley Water Quality Coalition, Kern Sub-region. Through this participation, the District has facilitated a number of landowners that

have determined that they may be potential dischargers to "waters of the state" to become members of the Coalition. The District has a monthly water quality monitoring protocol that it follows with respect to flows in White River, which has been approved under the MRP on file with the Control Board by the SSVWQC.

G. Water Accounting (Inventory)

1. *Water Supplies Quantified*
   a. *Surface water supplies, imported and originating within the service area, by month*
      See Table 1
   b. *Ground water extracted by the district, by month*
      See Table 2
   c. *Effective precipitation by crop*
      See Table 5
   d. *Estimated annual ground water extracted by non-district parties*
      See Table 2
   e. *Recycled urban wastewater, by month*
      See Table 3
   f. *Other supplies, by month*
      See Table 1

2. *Water Used Quantified*
   a. *Agricultural conveyance losses, including seepage, evaporation, and operational spills in canal systems*
      See Table 4
   b. *Consumptive use by riparian vegetation or environmental use*
      See Table 6
   c. *Applied irrigation water - crop ET, water used for leaching/cultural practices (e.g., frost protection, soil reclamation, etc.)*
      See Table 5
   d. *Urban water use*
      See Table 6
   e. *Ground water recharge*
      See Table 6
   f. *Water exchanges and transfers and out-of-district banking*
      See Table 6
   g. *Estimated deep percolation within the service area*
      See Table 6
   h. *Flows to perched water table or saline sink*
      See Table 6
   i. *Outflow water leaving the district*
      See Table 6
   j. *Other*
      See Table 6

3. *Overall Water Inventory*
      See Table 6

H. Assess Quantifiable Objectives:

Identify the Quantifiable Objectives that apply to the District (Planner, chapter 10) and provide a short narrative describing past, present and future plans that address the CALFED Water Use Efficiency Program goals identified for the District.

QO #	*QO Description*	*Past, Present & Future Plans*
183	Decrease flows to salt sinks	None-no salt sinks in DEID
186	Provide long-term diversion flexibility (PixNR)	District would consider addressing this QO when funding is available for this QO
187	Provide long-term diversion flexibility (salt soils)	District would consider addressing this QO when funding is available for this QO

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%*

Number of turnouts that are unmeasured or do not meet the standards listed above: 0

Number of measurement devices installed last year: 43

Number of measurement devices installed this year: 35

Number of measurement devices to be installed next year: 90

Types of Measurement Devices Being Installed	*Accuracy*	*Total Installed During Current Year*
Micrometer flow meters (measures both flow and volume)	+/-5%	

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

Name: Dale Brogan *Title:* General Manager

Address: 14181 Avenue 24 Delano, Ca 93215

Telephone: (66i) 725-2526 *E-mail:* dbrogan@deid.org

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*

	Total in district	*# surveyed last year*	*# surveyed in current year*	*# projected for next year*	*# projected 2nd yr in future*
Irrigated acres	unknown	147	159	160	160
Number of farms	unknown	4	3	4	4

2) *Timely field and crop-specific water delivery information to the water user*
Water delivery information is provided to each water users monthly by individual turnout (point of delivery to the water user). This information is then used by the water user to account for water used by field and crop.

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

The District promotes use of real time irrigation scheduling and crop ET information by providing information to water users through District's published annual Water Policy, its newsletter, and its website. The District maintains a direct link on its website to CIMIS, including CIMIS data collected at the CIMIS station sponsored by the District at its headquarters.

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

DEID is part of the Southern San Joaquin Valley Water Quality Coalition. A water quality measurement plan for DEID was submitted and approved by the Central Valley Water Quality Control Board staff, which includes standards for measuring water quality of surface water runoff in White River on an event basis. Results of those tests are available to the public upon request.

The District initiated a groundwater banking pilot project in 2007 that includes a groundwater quality monitoring plan. The first water quality samples were collected in the fall of 2009 with results pending. At least annual testing will occur through the life of the pilot program. Test results will be available to the public upon request.

The District will be installing a series of groundwater monitoring wells that will be used for collecting water quality samples in the future. Installation of these wells is slated for 2010, dependent upon receipt of an approved state AB303 grant in the amount of $250,000.

Local well drillers also provide groundwater quality analysis to customers in the District.

Friant Water Authority provides water quality information on Friant-Kern Canal surface water. The District makes that data available to District growers upon request.

The District has no drainage water.

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

Program	*Co-Funders (If Any)*	*Yearly Targets*
District newsletter	None	Quarterly to all landowners, water users, and others
Annual Water Policy	None	Quarterly to all landowners and water users
District website	None	Consistent updating of information on website
District website	None	Provide links to other educational websites
District DVD	None	Production and distribution of water conservation DVD (installation of float systems)
ACWA programs	Many	Funding of ACWA educational programs
CA Farm Water Coalition	Many	Funding of CFWC educational programs
Local Farm Bureaus	Many	Funding of FB educational programs
Water Assoc. of Kern Co.	Many	Funding of WAKC educational programs
Water Education Foundation	Many	Funding of WEF educational programs
CA Ag in the Classroom	Many	Funding of CAITC educational programs
Kern Co. Teachers Ag Day	Many	Funding of program to take teachers to ag operations

See Attachment K for samples of provided materials and notices

e. ***other***

4. *Pricing structure - based at least in part on quantity delivered. Describe the quantity-based water pricing structure, the cost per acre-foot, and when it became effective.*
   All water is billed from measured volumes delivered. The annual water price is designed to collect all water-related expenses for that year including Bureau charges for water, canal conveyance charges, attributable delta water costs (Exchange Contractors water), SWRCB fees, and a portion of CVPIA-fees and charges. Most of the CVPIA-related fees and charges are collected on a per acre assessment charged to all lands within DEID.

   Annual water pricing becomes effective March 1 of each year, subject to potential change based on conditions. The 2009 base water rate was $49.50 per acre-foot for irrigation water.

5. *Evaluate and describe the need for changes in policies of the institutions to which the district is subject.*
   USBR water transfer policy- needs revision to allow water management transfers and exchanges to non-long-term contractors. Current policy prevents most such transfers and exchanges

   USBR water banking policy- needs revision to allow for unbalanced banking programs. Current banking outside of 1:1 exchanges are difficult to gain approval.

6. *Evaluate and improve efficiencies of district pumps. Describe the program to evaluate and improve the efficiencies of the contractor's pumps.*
   District budgets for routine maintenance of District pumps and has participated in SCE pump testing programs on those pumps where configuration allows in-place testing. Latest tests conducted in 2009. District and SCE have explored potential pump testing facilities that could provide off-site testing where in-place testing is not possible.

B. Exemptible BMPs for Agricultural Contractors

(See Planner, Chapter 2, Appendix C for examples of exemptible conditions)

1. Facilitate alternative land use

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

Describe how the contractor encourages customers to participate in these programs.
The District has no lands identified that would necessitate the need to evaluate potential alternative land uses.

2. Facilitate use of available recycled urban wastewater that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils

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

The District's distribution system is completely pipeline and pressurized.

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

Funding source Programs	*How provide assistance*
District	DEID provides information to water users of available opportunities of loans, grants, cost-sharing, and any other financial assistance programs offered by others through the District newsletters and annual Water Policy.

4. Incentive pricing

Structure of incentive pricing	*Related goal*
Surface water priced at or below cost of pumping groundwater from private wells	Conjunctive use of groundwater

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*
NA-Completely pipelined system				

b) Construct regulatory reservoirs

Reservoir Name	*Annual Spill in Section (AF/Y)*	*Estimated Spill Recovery (AF/Y)*	*Accomplished/ Planned Date*
NA-Completely pipelined system with no operational spills			

6. *Increase flexibility in water ordering by, and delivery to, water users*
The District has taken a number of steps in its pursuit of providing the most efficient and flexible water operations possible that are both economic and functional for the benefit of our water users. These steps include:

(a) purchasing new water ordering and accounting software in 2006 (at a cost of $15000) for tracking water ordered, used, and ultimately billed;

(b) launching of a new feature on the District's website that allows growers to order water 24 hours a day, seven days a week and also allows secured grower access of water use data by turnout for each month of the current water year, available for the first time in 2007 (cost of $40,000);

(c) construction of a SCADA system for the entire District, allowing remote monitoring and control of all pumping plants and related facilities (constructed in 2000 at a cost of $425,000);

(d) maximizing water delivery opportunities for growers through flexible water ordering hours which was further enhanced in 2007 with the addition of implementing web based water orders for growers, 24 hours a day, seven days a week; further enhanced and improved in 2008 (cost of $650)

(e) completion of a three-year turnout renovation project in 2002 that updated and converting all agricultural turnouts to an improved design with new valve, meter, and delivery components (approximate cost of $2.4 million);

(f) ongoing promotion and installation of turnout "float systems" that allow constant volumetric flow to the grower by automatically adjusting for variations in pressure within the District's distribution system (315 installed from 2003 through 2009 at an approximate cost of $3,500 each); this project is being accelerated during 2007 through 2009 with the use of a $300,000 "Water 2025" challenge grant that the District will use exclusively to encourage and install additional float systems (DEID is matching the grant with $300,000 of its own funds);

(g) the District has invested in new motor control centers at 15 of its 18 pumping plants at a cost of $1.365 million; the new MCCs provide greater reliability, and hence flexibility to the District's distribution system (begun in 2005 and completed in 2007).

All of these capital improvements allow for greater flexibility in our system through quicker, more responsive controls. Further, all are also a part of an overall goal of the District transitioning to a delivery system that is based on grower demands on a real-time basis. Such a system will provide constant water flows and variable start and stop times for water deliveries based on the needs of the grower. This has been achieved for those growers with float systems installed.

See Attachment L, contractor 'agricultural water order' form

7. *Construct and operate district spill and tailwater recovery systems*

Distribution System Lateral	*Annual Spill (AF/Y)*	*Quantity Recovered and reused (AF/Y)*
NA-Distribution system in completely pipelined with no operational spills		

Drainage System Lateral	*Annual Drainage Outflow (AF/Y)*	*Quantity Recovered and reused (AF/Y)*
NA-district has no drainage issues or impacted lands		

8. Plan to measure outflow.

Total # of outflow (surface) locations/points NA
Total # of outflow (subsurface) locations/points NA
Total # of measured outflow points NA
Percentage of total outflow (volume) measured during report year NA

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

Location & Priority	*Estimated cost (in $1,000s)*				
	2009	*2010*	*2011*	*2012*	*2013*
NA					

9. *Optimize conjunctive use of surface and ground water*
DEID is currently in its second year of conducting an in-district direct groundwater recharge pilot project. The pilot project involves conversion of the District's existing 80-acre groundwater recharge basin into a full groundwater bank, complete with recovery wells and tie-ins with the District's distribution system. In 2008-09, the District constructed the first groundwater recovery well on the site. The well was operated during the summer months to gather data. Recharge operations were also conducted in the spring and fall months, again stressing the collection of data as part of the pilot project. Additional planned activities for the pilot project:

a) Construction of a second recovery well in 2010, which is being partially funded through a USBR Challenge Grant.

b) Installation of a series of dedicated groundwater monitoring wells. The wells are being partially funded through a State AB303 grant.

c) Construction of up to three additional groundwater recovery wells and miscellaneous basin improvements in 2010. This phase of the pilot project (phase 2) is being partially funded by an ARRA grant administered by the USBR.

d) Expansion of the current 80-acre pilot project site to a total of 160 acres in 2010-11. Escrow was opened in 2009 on the purchase of an 80-acre parcel immediately adjacent to the existing pilot project site. The new property will be developed into additional recharge area in 2010-11.

e) Further land acquisition opportunities will be sought in subsequent years with the target being up to 400 acres of in-district recharge areas.

The District is also involved in out-of-district banking opportunities which include:

a) Continued review and coordination of other water management/conjunctive use opportunities through membership and participation in the Poso Creek Integrated Regional Water Management Planning Group.

b) Continue a joint groundwater banking investigation with neighboring Pixley Irrigation District for the purpose of determining the feasibility of developing a new regional groundwater bank. The feasibility study was completed in 2007, with additional investigations commissioned in 2008.

c) The District completed a groundwater banking agreement in 2006 with North Kern Water Storage District that allowed DEID to bank nearly 30,000 acre-feet of surplus 2006 CVP water in NK for later withdrawal and use by DEID. Withdrawals occurred in both 2007 and 2009 to supplement below-average water years. In 2009, the District entered into negotiations with NKWSD to expand the current banking program by allowing additional water to be banked through the remaining 17-year life of the banking agreement.

d) In 2009 the District has pursued a groundwater banking agreement with Rosedale Rio-Bravo Water Storage District that would allow the banking of surplus project and non-project water in Rosedale by DEID for later return in below-average water years. The proposed project anticipates an active program of deposits and withdrawal over the next 25 years.

The District is also involved in activities supporting increased conjunctive use programs, including:

a) Extensive groundwater monitoring and mapping within the DEID boundaries.

b) Continued participation in a regional groundwater monitoring and mapping program with six other neighboring districts.

10. Automate canal structures

NA-District distribution system is completely pipelined.

11. Facilitate or promote water customer pump testing and evaluation

The District continues to promote on-farm pump testing by including information on entities and companies that provide this service periodically in its newsletter and in the "Water Conservation" section of the District's annual Water Policy that is sent to all landowners and water users. The information is also posted on the District's web site. The local utility company is also invited to promote its pump testing services at periodic water user meetings held by the District.

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

12. Mapping

GIS maps	*Estimated cost (in $1,000s)*				
	2009	*2010*	*2011*	*2012*	*2013*
*Layer 1 – Distribution system**	4	0	0	0	0
Layer 2 – Drainage system	NA				
Suggested layers:					
*Layer 3 – Ground water information***	0	0	0	0	0
*Layer 4 – Soils map****	0	0	0	0	0
Layer 5 – Natural & cultural resources	NA				
Layer 6 – Problem areas	NA				

* Majority of work and expense in converting District map to GIS-based map was expended in 2008.

** Groundwater information is mapped on a separate mapping system for ease in analysis. No plans to adapt to District base map as it would serve no purpose.

*** Soils map will remain on NRCS data base map. No plans to convert to District base map as it would serve no purpose.

C. Provide a 3-Year Budget for Implementing BMPs

1. Amount actually spent during current year.

BMP #		*BMP Name*	*Actual Expenditure (not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	*$108,000*	*50*
	2	*Conservation staff*	*$0*	*50*
	3	*On-farm evaluation /water delivery info*	*$8,000*	*135*
		Irrigation Scheduling	*$7,500*	*135*
		Water quality	*$5,000*	*50*
		Agricultural Education Program	*$191,000*	*175*
	4	*Quantity pricing*	*$304,000*	*9,360*
	5	*Policy changes*	*$10,000*	*50*
	6	*Contractor's pumps*	*$14,000*	*250*
B	*1*	*Alternative land use*	*$0*	*0*
	2	*Urban recycled water use*	*$0*	*0*
	3	*Financing of on-farm improvements*	*$10,000*	*175*
	4	*Incentive pricing*	*$1,500*	*35*
	5	*Line or pipe canals/install reservoirs*	*$0*	*0*
	6	*Increase delivery flexibility*	*$189,400*	*368*
	7	*District spill/tailwater recovery systems*	*$0*	*0*
	8	*Measure outflow*	*$0*	*0*
	9	*Optimize conjunctive use*	*$1,170,000*	*5,000*
	10	*Automate canal structures*	*$0*	*0*
	11	*Customer pump testing*	*$1,500*	*30*
	12	*Mapping*	*$4,000*	*30*
		Total	*$2,023,900*	*15,893*

2. *Projected budget summary for the next year.*

BMP #		BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A	1	Measurement	$110,000	50
	2	Conservation staff	$0	0
	3	On-farm evaluations/water delivery info	$8,000	135
		Irrigation Scheduling	$7,500	135
		Water quality	$7,000	60
		Agricultural Education Program	$195,000	175
	4	Quantity pricing	$307,000	9,360
	5	Policy changes	$10,000	50
	6	Contractor's pumps	$16,000	250
B	1	Alternative land use	$0	0
	2	Urban recycled water use	$0	0
	3	Financing of on-farm improvements	$10,000	175
	4	Incentive pricing	$1,500	35
	5	Line or pipe canals/install reservoirs	$0	0
	6	Increase delivery flexibility	$82,000	160
	7	District spill/tailwater recovery systems	$0	0
	8	Measure outflow	$0	0
	9	Optimize conjunctive use	$2,833,000	7,500
	10	Automate canal structures	$0	0
	11	Customer pump testing	$1,500	30
	12	Mapping	$0	0
		Total	$3,588,500	18,115

3. *Projected budget summary for 3rd year.*

BMP #		BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A	1	Measurement	$115,000	50
	2	Conservation staff	$0	50
	3	On-farm evaluations/water delivery info	$8,000	135
		Irrigation Scheduling	$7,500	135
		Water quality	$8,500	70
		Agricultural Education Program	$200,000	175
	4	Quantity pricing	$310,000	9360
	5	Policy changes	$10,000	50
	6	Contractor's pumps	$18,000	250
B	1	Alternative land use	$0	0
	2	Urban recycled water use	$0	0
	3	Financing of on-farm improvements	$10,000	175
	4	Incentive pricing	$1,500	35
	5	Line or pipe canals/install reservoirs	$0	0
	6	Increase delivery flexibility	$41,000	80
	7	District spill/tailwater recovery systems	$0	0
	8	Measure outflow	$0	0
	9	Optimize conjunctive use	$150,000	3,000

(continued) BMP #	BMP Name		*Budgeted Expenditure (not including staff time)*	*Staff Hours*
10	*Automate canal structures*		*$0*	*0*
11	*Customer pump testing*		*$1,500*	*30*
12	*Mapping*		*$0*	*0*
		Total	*$88,100*	*13,155*

Section 4: Best Management Practices (BMPs) for Urban (Municipal and Industrial) Contractors

1. All new service connections are metered.
2. 79 metered connections; 68 residential; 3 industrial; 8 commercial.
3. 68 meters read every 30 days; 11 every 90 days.
4. All billed by volume used.
5. Residential accounts are billed each month (see page 11 for rates).
6. Billings per year: residential-12 (monthly); commercial- 4 (quarterly); industrial- 4 (quarterly).

Section 5: District Water Inventory Tables

Supplemental Tables

Table 1

Surface Water Supply

2008 Month	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
Method							
January	0	0	0	0	0	0	0
February	1317	13	0	0	0	0	1,330
March	5984	1	0	0	0	0	5,985
April	9439	11	0	0	0	0	9,450
May	11334	78	0	0	0	0	11,412
June	19286	12	0	0	0	0	19,298
July	21919	10	0	0	0	0	21,929
August	17392	120	0	0	0	0	17,512
September	11265	10	0	0	0	0	11,275
October	8629	9	0	0	0	0	8,638
November	2808	55	0	0	0	0	2,863
December	789	0	0	0	0	0	789
TOTAL	110,162	319	0	0	0	0	110,481

Table 2

Ground Water Supply

2008 Month Method	District Groundwate (acre-feet)	Private Groundwate *(acre-feet)
January	0	0
February	0	0
March	0	4,150
April	0	21,024
May	0	26,859
June	0	23,195
July	0	9,481
August	0	4,773
September	0	0
October	0	0
November	0	0
December	0	0
TOTAL	0	89,482

*normally estimated

Table 3

Total Water Supply

2008 Month	Surface Water Total (acre-feet)	District Groundwate (acre-feet)	Recycled M&I (acre-feet)	Total District (acre-feet)
Method				
January	0	0	0	0
February	1,330	0	0	1,330
March	5,985	0	0	5,985
April	9,450	0	0	9,450
May	11,412	0	0	11,412
June	19,298	0	0	19,298
July	21,929	0	0	21,929
August	17,512	0	0	17,512
September	11,275	0	0	11,275
October	8,638	0	0	8,638
November	2,863	0	0	2,863
December	789	0	0	789
TOTAL	110.481	0	0	110,481

*Recycled M&I Wastewater is treated urban wastewater that is used for agriculture.

Table 4

Distribution System

2008 Canal, Pipeline, Lateral, Reservoir	Length (feet)	Width (feet)	Surface Area (square feet)	Precipitatio (acre-feet)	Evaporation (acre-feet)	Spillage (acre-feet)	Seepage (acre-feet)	Total (acre-feet)
D-11 reservoir	75	200	15,000	0	2	0	0	(2)
D-17 reservoir	56	279	15,624	0	2	0	0	(2)
D-12 reservoir	130	385	50,050	1	7	0	0	(6)
D-14 reservoir	95	385	36,575	0	5	0	0	(4)
Terminal reservoir	114	105	11,970	0	2	0	0	(1)
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
TOTAL			129,219	2	17	0	0	(16)

Table 5

Crop Water Needs

2008 Crop Name	Area (crop acres)	Crop ET (AF/Ac)	Leaching Requiremen (AF/Ac)	Cultural Practices (AF/Ac)	Effective Precipitatio (AF/Ac)	Appl. Crop Water Use (acre-feet)
Alfalfa	725	3.99	0.20	0.00	0.04	3,007
Citrus	1,966	2.89	0.10	0.00	0.04	5,794
Grapes w/cover crc	29,426	2.33	0.10	0.72	0.04	91,427
Tree Fruit w/cover crop	1,504	3.55	0.20	0.72	0.04	6,658
Field/Row Crops	1,444	1.65	0.10	0.00	0.04	2,465
Nut Crops w/cover	14,084	2.70	0.10	0.72	0.04	48,970
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
Crop Acres	49,149					158,320

Total Irrig. Acres 49,149 (If this number is larger than your known total, it may be due to double cropping)

Table 6

2008 District Water Inventory

Water Supply	Table 3		110,481
Riparian ET	(Distribution and Drain)	minus	0
Groundwater recharge	intentional - ponds, injection	minus	0
Seepage	Table 4	minus	0
Evaporation - Precipitation	Table 4	minus	16
Spillage	Table 4	minus	0
Transfers/exchanges/trades/wheel	(into or out of the district)	plus/minus	(250)
Non-Agri deliveries	delivered to non-ag customers	minus	319
Water Available for sale to agricultural customers			109,896
Compare the above line with the next line to help find data gaps			
2005 Actual Agricultural Water Sales	From District Sales Records		110,465
Private Groundwater	Table 2	plus	89,482
Crop Water Needs	Table 5	minus	158,320
Drainwater outflow	(tail and tile not recycled)	minus	0
Percolation from Agricultural Land	(calculated)		41,627

Table 7

Influence on Groundwater and Saline Sink

2008

Agric Land Deep Perc + Seepage + Recharge - Groundwater Pumping = District Influence	0
Estimated actual change in ground water storage, including natural recharge)	0
Irrigated Acres (from Table 5)	49,149
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)	Other Water (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
1999	128,267	123	0	9,500	0	0	137,890
2000	130,582	191	0	5,065	0	0	135,838
2001	110,432	108	0	5,043	0	0	115,583
2002	123,333	213	0	4,130	0	0	127,676
2003	108,459	125	0	5,165	6,684	0	120,433
2004	121,229	152	0	6,837	0	0	128,218
2005	100,355	239	0	2,904	15,318	0	118,816
2006	109,274	198	0	0	8,998	0	118,470
2007	69,512	265	0	0	1,858	0	71,635
2008	110,162	319	0	0	0	0	110,481
Total	1,111,605	1,933	0	38,644	32,858	0	1,185,040
Average	111,161	193	0	3,864	3,286	0	118,504

TABLE 2A

Calculation of Private Groundwater Pumped-2008

Month	Crop Demand(1) (acre-feet)	Irrigation Efficiency (2) (percent)	Total Water Requirement (acre-feet)	Quantity Available(3) (acre-feet)	Quantity Pumped(4) (acre-feet)	Deep Percolation(5) (acre-feet)
January	188	85%	221	221	0	0
February	274	85%	322	1,652	0	995
March	8,615	85%	10,135	5,985	4,150	0
April	25,903	85%	30,474	9,450	21,024	0
May	32,686	85%	38,455	11,596	26,859	0
June	36,119	85%	42,493	19,298	23,195	0
July	26,699	85%	31,410	21,929	9,481	0
August	18,942	85%	22,285	17,512	4,773	0
September	8,143	85%	9,580	11,275	0	1,685
October	1,244	85%	1,463	9,457	0	7,166
November	259	85%	305	3,168	0	2,503
December	224	85%	263	1,052	0	526
TOTAL	159,294		187,405	112,595	89,481	12,875

(1) Percentage distribution from Table 5B below
(2) Estimated District average for all crops, soil types, and irrigation methods
(3) Surface supplies (table 1) + effective precipitation available (table 5A) to meet crop demand
(4) estimate (total water requirement minus quantity available)
(5) available surface supply (table 1) in excess of total water requirement

Table 4A

Calculation of Precipitation/Evaporation/Seepage

2008 Precipitation Worksheet				
	inches precip	ft precip	acres	AF/Year
Jan	2.17	0.18	0.34	0.18
Feb	1.76	0.15	0.36	0.18
Mar	0.00	0.00	1.15	0.59
Apr	0.00	0.00	0.84	0.43
May	0.09	0.01	0.27	0.14
Jun	0.00	0.00	0.00	0.00
Jul	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	0.00
Sept	0.00	0.00	0.00	0.00
Oct	0.40	0.03	0.00	0.00
Nov	0.91	0.08	0.00	0.00
Dec	0.81	0.07		
TOTAL	6.14	0.51		

2008 Evaporation Worksheet					Seepage		
	inches evap	ft evap	acres	AF/YEAR	acres	AFY	AF/ac seepage
Jan	2.17	0.18	0.34	1.99	0.34	0.00	0.00
Feb	2.8	0.23	0.36	2.07	0.36	0.00	0.00
Mar	4.8	0.40	1.15	6.64	1.15	0.00	0.00
Apr	5.31	0.44	0.84	4.85	0.84	0.00	0.00
May	10.52	0.88	0.27	1.59	0.27	0.00	0.00
Jun	9.2	0.77	0.00	0.00	0.00	0.00	0.00
Jul	9.04	0.75	0.00	0.00	0.00	0.00	0.00
Aug	10.42	0.87	0.00	0.00	0.00	0.00	0.00
Sept	5.84	0.49	0.00	0.00	0.00	0.00	0.00
Oct	5.5	0.46	0.00	0.00	0.00	0.00	0.00
Nov	2.28	0.19	0.00	0.00	0.00	0.00	0.00
Dec	1.48	0.12			2.97	0.00	0.00
TOTAL	69.36	5.78			5.93	0.00	

TABLE 5A

Effective Precipitation Calculation-2008

	Measured amt. (inches)	50% of total (feet)	Potential Supply from Eff.Precip.(af)	Crop Demand (af)	Water Supply from Eff.Precip.(af)
January	2.17	0.09	4444	221	221
February	1.76	0.07	3604	322	322
March	0	0.00	0	10,135	0
April	0	0.00	0	30,474	0
May	0.09	0.00	184	38,455	184
June	0	0.00	0	42,493	0
July	0	0.00	0	31,410	0
August	0	0.00	0	22,285	0
September	0	0.00	0	9,580	0
October	0.4	0.02	819	1,463	819
November	0.91	0.04	1864	305	305
December	0.81	0.03	1659	263	263
TOTAL	6.14	0.26	12574	187,405	2114
	precip.@DEID office	assumed		from Table 5B	
				2008 irrigated acreage =	49149
				average effective precipitation (AF/Ac) =	**0.043**

TABLE 5B (page 1 of 5)

Et for Crops in DEID - 2008

ET for crops in DEID-inches per acre

	Alfalfa			Citrus (1)		
	in./ac.	acres	**ac.ft.**	in./ac.	acres	**ac.ft.**
Jan	0.99	725	**59.81**	0.78	1966	**127.79**
Feb	1.44	725	**87.00**	1.14	1966	**186.77**
Mar	3.16	725	**190.92**	2.33	1966	**381.73**
Apr	4.58	725	**276.71**	3.37	1966	**552.12**
May	6.33	725	**382.44**	4.67	1966	**765.10**
Jun	7.3	725	**441.04**	4.99	1966	**817.53**
Jul	7.57	725	**457.35**	5.18	1966	**848.66**
Aug	6.41	725	**387.27**	4.39	1966	**719.23**
Sep	4.77	725	**288.19**	3.26	1966	**534.10**
Oct	3.2	725	**193.33**	2.36	1966	**386.65**
Nov	1.44	725	**87.00**	1.05	1966	**172.03**
Dec	0.69	725	**41.69**	1.11	1966	**181.86**
total-inches	47.88			34.63		
total-feet	3.99		**2892.75**	2.89		**5673.55**
Leaching Factor			145			196.6
Total			3037.75			5870.15

(1) 0.3 ac.in. addded in Dec use for frost protection

TABLE 5B (page 2 of 5)

	Grapes w/ Cover Crop				
	Crop	Cover***	Total-in./ac.	acres	**ac.ft.**
Jan				29,426	**0.00**
Feb				29,426	**0.00**
Mar	0.7	1.29	1.99	29,426	**4879.81**
Apr	3.18	3.19	6.37	29,426	**15620.30**
May	5.64	2.09	7.73	29,426	**18955.25**
Jun	6.5	2.1	8.6	29,426	**21088.63**
Jul	6.09	0	6.09	29,426	**14933.70**
Aug	4.2	0	4.2	29,426	**10299.10**
Sep	1.59	0	1.59	29,426	**3898.95**
Oct		0	0	29,426	**0.00**
Nov				29,426	**0.00**
Dec				29,426	**0.00**
total-inches	27.9	8.67	36.57		
total-feet	2.33	0.72	3.05		**89675.74**
Leaching Factor					2942.6
Total					92618.34

TABLE 5B (page 3 of 5)

	Tree fruit with cover crop				
	in./ac.	over**	Total-in./ac.	acres	ac.ft.
Jan			0	1,504	**0.00**
Feb			0	1,504	**0.00**
Mar	1.9	1.29	3.19	1,504	**238.13**
Apr	1.9	3.19	5.09	1,504	**238.13**
May	5.43	2.09	7.52	1,504	**680.56**
Jun	6.87	2.1	8.97	1,504	**861.04**
Jul	9.41	0	9.41	1,504	**1179.39**
Aug	7.88	0	7.88	1,504	**987.63**
Sep	5.61	0	5.61	1,504	**703.12**
Oct	3.55	0	3.55	1,504	**444.93**
Nov		0	0	1,504	**0.00**
Dec		0	0	1,504	**0.00**
total-inches	42.55	8.67	51.22		
total-feet	3.55	0.72	4.27		**5332.93**
Leaching Factor					**300.8**
Total					**5633.73**

TABLE 5B (page 4 of 5)

	Field/Row Crops			Almonds/ Other Nuts with Cover Crop (6)				
	in./ac.	acres	ac.ft.	Crop (5)	Cover	Total-in./ac.	acres	ac.ft.
Jan		1,444	**0.00**				14,084	**0.00**
Feb		1,444	**0.00**				14,084	**0.00**
Mar	2	1,444	**240.67**	0.81	1.29	2.10	14,084	**2464.70**
Apr	4.93	1,444	**593.24**	3.69	3.19	6.88	14,084	**8074.83**
May	7.82	1,444	**941.01**	6.55	2.09	8.64	14,084	**10140.48**
Jun	5.01	1,444	**602.87**	7.55	2.1	9.65	14,084	**11325.88**
Jul		1,444	**0.00**	7.07	0	7.07	14,084	**8297.82**
Aug		1,444	**0.00**	4.88	0	4.88	14,084	**5727.49**
Sep		1,444	**0.00**	1.85	0	1.85	14,084	**2171.28**
Oct		1,444	**0.00**	0.00	0	0.00	14,084	**0.00**
Nov		1,444	**0.00**				14,084	**0.00**
Dec		1,444	**0.00**				14,084	**0.00**
total-inches	19.76			32.4	8.67	41.07		
total-feet	1.65		**2377.79**	2.70	0.72	3.42		**48202.49**
Leaching Factor			144.4					1408.4
Total			2522.19					49610.89

(5) Used total of 2.7 af/ac w/same monthly use curve as grapes

TABLE 5B (page 5 of 5)

	total ac.ft	Leaching Factor (7) distribution	Leaching Factor (7) ac.ft.	Total Irrig. Demand ac.ft.	Total Irrig. Demand percent	Assumed Irrig. Eff.	**Total Wtr. Requirement**
Jan	188			**188**	**0.12%**	85%	**221**
Feb	274			**274**	**0.17%**	85%	**322**
Mar	8396	4.26%	219	**8615**	**5.41%**	85%	**10135**
Apr	25355	10.65%	547	**25903**	**16.26%**	85%	**30474**
May	31865	15.99%	822	**32686**	**20.52%**	85%	**38455**
Jun	35137	19.11%	982	**36119**	**22.67%**	85%	**42493**
Jul	25717	19.11%	982	**26699**	**16.76%**	85%	**31410**
Aug	18121	15.99%	822	**18942**	**11.89%**	85%	**22285**
Sep	7596	10.65%	547	**8143**	**5.11%**	85%	**9580**
Oct	1025	4.26%	219	**1244**	**0.78%**	85%	**1463**
Nov	259			**259**	**0.16%**	85%	**305**
Dec	224			**224**	**0.14%**	85%	**263**
total-inches							
total-feet	154155	100%	5139	**159294**	**100.00%**		**187405**

5137.8
159,293

(7) Assumed leaching Factor distribution

Total Acres 49149