State Water Resources Control Board
Hearing Name IID Transfer - Phase 1
Exhibit: 34
For Ident: _____ In Evidence: _____

IMPERIAL IRRIGATION DISTRICT

WATER DEPARTMENT

Water Information - 2000

WATER INFORMATION 2000

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WATER INFORMATION 2000

I. WATER DEPARTMENT ORGANIZATION

I. WATER DEPARTMENT ORGANIZATION

A. Historical Overview of Imperial Irrigation District Through 2000

The Imperial Irrigation District (IID) was formed in 1911, under the California Irrigation District Act, to acquire properties of the bankrupt California Development Company and its Mexican subsidiary to import raw Colorado River water and distribute it. The IID ended its fifty-year operation in Mexico by selling its holdings to the Mexican government in 1961. By 1922, the IID had acquired 13 mutual water companies, which had developed and operated distribution canals in the Imperial Valley. By the mid-1920s, the IID was delivering water to nearly 500,000 acres. Since 1942, water has been diverted at Imperial Dam on the Colorado River through the All-American Canal, both of which the IID operates and maintains. As a public utility, the IID does not make a profit from the sale of its water. All benefits stay in the local area in the form of lower rates and progressive services to meet local needs. As such the IID has a special commitment to innovation and the wise use of resources.

Colorado River water flows from Imperial Dam into the All-American Canal with a Total Dissolved Solid (TDS) value greater than 900 parts per million. The salinity of Colorado River water contributes to salt accumulation in agricultural soils that are located in the Imperial Unit. To mitigate this accumulation, underground tile-drain lines have been installed in most agricultural lands that do not drain naturally. In 1924 the President of the United States signed Orders of Withdrawal creating a public water reserve around the Salton Sea. Public water reserve lands located around the Salton Sea were created for the express purpose of storing drainage waters from irrigated lands in Imperial and Coachella Valleys and for natural runoff. IID's extensive gravity flow drainage system discharges into this public water reserve.

The IID and its agricultural water users have a long history of efficient water use and have implemented many agricultural based water conservation programs. Together the IID and its agricultural water users have invested more than $625 million toward water conservation efforts over the past 50 years. Some of IID's earlier conservation projects, such as the on-farm tile drainage and seepage recovery programs, were started in the 1940s. In the 1950s seepage recovery, canal and lateral concrete lining, and automation projects were completed as part of the water distribution system conservation effort. In the 1960s drain pipelines and additional seepage-recovery projects were completed and the canal-lining program was accelerated. The 1970s saw the beginning of regulating reservoir projects and administrative water conservation programs at the IID. During the 1980's new water conservation projects and programs began every year, including tailwater return systems and irrigation management. At the end of the decade construction began on projects resulting from an agreement between IID and Metropolitan Water District of Southern California for the transfer of conserved water in the amount of 100,000 AF/year. In the 1990s water conservation projects and programs continued at the on-farm, regional, State, and national levels. In 1997, the IID and the San Diego County Water Authority entered into a long-term conservation and water transfer agreement, which, if implemented, will benefit all Californians.

At the end of 1999 the Boards of Directors of the IID, Coachella Valley Water District, and Metropolitan Water District of Southern California approved the *Key Terms for Quantification Settlement among the State of California, Imperial Irrigation District, Coachella Irrigation District, and Metropolitan Water District of Southern California* as the basis for obtaining public input regarding a Quantification Settlement Agreement (QSA). From this input and negotiations the QSA parties are drafting a series of legal agreements that together will comprise a QSA. In general, the QSA is a proposed agreement to reallocate a portion of Colorado River water and implement certain practices during the quantification period (which could last from 35 to 75 years) as a means of resolving differences among Colorado River contractors regarding water allocations. The QSA is designed to enhance the

reliability of Colorado River supplies to each of the participating agencies and provide part of the mechanism for California to limit its diversions of Colorado River water to its 4.4 million acre-feet per year apportionment.

In 2000, the California Department of Transportation (Caltrans) has several state highway construction projects in progress within Imperial County. These projects facilitate service to the new Calexico Port of Entry, and enhance international/interregional movement of goods and services. These projects upgrade current highways from 2-lane conventional highways to 4-lane divided expressways, widen existing roadways, and ensure that adequate border transportation infrastructure is in place to accommodate the expected increase in commercial carrier activity between the United States and Mexico. Most of this work is needed as a result of the North American Free Trade Agreement (NAFTA). Highways impacted include State Route 111 from Ross Road to State Route 78 (Units 1, 2, and 3) and State Route 7 from State Route 98 to Interstate 8. Water Department staff and consultants are preparing relocation plans and constructing the relocation of IID's canal, drainage, and electrical systems as part of this work. Power and Water Department staff and consultants have completed all relocation plans and designs for IID's canal, drainage, and electrical systems for State Route 111 from Ross Road to State Route 78 (Units 1, 2, and 3) at this time. In the fall of 2000 Water Department staff began construction to relocate IID facilities (along Unit 1). Additionally Power and Water Department staffs have completed fifty percent of the relocation plans for IID's canal, drainage, and electrical systems for State Route 7 from State Route 98 to Interstate 8.

B. Historical Overview of Imperial Irrigation District's Water Rights Through 2000

The IID's right to divert Colorado River water are long standing. IID holds legal titles to all its water and water rights in trust for landowners within the district (California Water Code §§20529 and 22437; Bryant v. Yellen, 447 U.S. 352, 371 (1980), fn.23.). Beginning in 1885 a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under the stipulations of California law for use in the Imperial Valley. Pursuant to then-existing California laws, these appropriations were initiated by the posting of public notices for 10,000 cfs each at the point of diversion and recording such notices in the office of the county recorder. The individual appropriations were subsequently assigned to the California Development Company, whose entire assets, including its water rights, were later bought by the Southern Pacific Company. After the IID was formed in 1911, the Southern Pacific Company conveyed all of its water rights to the IID on June 22, 1916.

The IID's predecessor right holders made reasonable progress in putting their pre-1914 appropriative water rights to beneficial use. By 1929, 424,145 acres of the Imperial Valley were under irrigation. Had the IID not subsequently modified its pre-1914 appropriative rights, the IID would have perfected its pre-1914 appropriative water right at over 7 million acre-feet annually.

Subsequently, in 1921 representatives from the seven Colorado River basin states, with the authorization of their legislatures and at the urging of the Federal government, began negotiations regarding the distribution of waters from the Colorado River. In November of 1922, the representatives from the upper (Colorado, New Mexico, Utah and Wyoming) and lower (Arizona, California, and Nevada) basin states signed the Colorado River Compact (Compact), an interstate

agreement giving each basin perpetual rights to annual apportionments of 7.5 million acre-feet of Colorado River water annually.

The Compact was made effective by provisions in the 1928 Boulder Canyon Project Act (45 Statute 1056), which authorized the construction of Hoover Dam and the All-American Canal and served as the United States' consent to accept the Compact. Officially enacted on June 25, 1929 through a Presidential Proclamation, this act resulted in the ratification of the Compact by six of the basin states and also required California to limit its annual consumptive use to 4.4 million acre-feet of the lower basin's apportionment, plus not less than half of any excess or surplus water unapportioned by the Compact. Arizona refused to sign and subsequently filed a lawsuit. California abided by this federal mandate through the implementation of its 1929 Limitation Act. The Boulder Canyon Project Act moreover authorized the Secretary of the Interior (Secretary) to "contract for the storage of water . . . and for the delivery thereof . . . for irrigation and domestic uses", and further defined the lower basin's apportionment split by allocating 0.3 million acre-feet of water to Nevada and 2.8 million acre-feet of water to Arizona. While the three states never formally accepted or agreed to these terms, a 1964 Supreme Court decision *(Arizona vs. California, 373 U.S. 546)* declared their consent to be inconsequential since the Boulder Canyon Project Act was authorized by the Secretary.

Following the implementation of the Boulder Canyon Project Act, the Secretary requested California make recommendations regarding the distribution of its allocation of Colorado River water. In August of 1931, under the direction of the Chairmanship of the State Engineer, the California Seven-Party Agreement was developed and authorized by the affected parties in order to prioritize California water rights. The Secretary accepted this agreement and established these priorities (as shown in the California Colorado River Annual Water Right Priorities Table below) through General Regulations issued in September of 1931. The first four priority allocations account for California's 4.4 million acre-feet allotment, with agricultural entities utilizing 3.85 million acre-feet of that total. The remaining

priorities are defined for years in which the Secretary declares that excess waters are available. Finally, it should also be noted that a 1944 treaty entitles Mexico to an annual apportionment of 1.5 million acre-feet of Colorado River water and additional 200,000 acre-feet in years that excess water is available.

California Colorado River Annual Water Right Priorities

Priority Order	User	Apportionment	Present Perfected Rights
1.	Palo Verde Irrigation District (for use exclusively upon 104,500 acres of Valley land in, and adjoining district)	3,850,000 AF	219,790 AF (or the consumptive use of 33,604 acres)
2.	Yuma Project (for use on California Division, not exceeding 25,000 acres of land)		38,270 AF (or the consumptive use of 6,294 acres)
3a.	Imperial Irrigation District (lands served by All-American Canal in Imperial and Coachella Valleys)		2,600,000 AF (Imperial Irrigation District only) (or the consumptive use of 424,145 acres)
3b.	Palo Verde Irrigation District (for use exclusively on an additional 16,000 acres of mesa lands)		
4.	Metropolitan Water District (for use on the Southern California Coastal Plain)	550,000 AF	
	Subtotal: [California's Limit (not including surplus waters) of Colorado River Water as per the Boulder Canyon Project Act and the 1929 Limitation Act]	4,400,000 AF	
5a.	Metropolitan Water District (for use on the Southern California Coastal Plain)	550,000 AF	
5b.	City and County of San Diego (through MWD)	112,000 AF	
6a.	Imperial Irrigation District (lands served by All-American Canal in Imperial and Coachella Valleys)	300,000 AF	
6b.	Palo Verde Irrigation District (for use exclusively on 16,000 acres of mesa lands)		
7.	California Agricultural Use (Colorado River Basin lands in California)	all remaining available water	

Pursuant to the provisions of the Boulder Canyon Project Act adopted in 1929, the California Limitation Act (Act of March 4, 1929; Chapter 16, 48th Session; Statutes and Amendments to the Codes, 1929, p.38-39.), and the Secretary's contracts, California was apportioned an annual 4.4 million acre-feet out of the lower basin allocation of 7.5 million acre-feet annually, plus 50% of any available surplus water.

The further apportionment of California's share of Colorado River water was made by the Secretary of the Interior by entering into contracts with California water right holders. On December 1, 1932 the Secretary, acting on behalf of the United States, executed a contract with IID to deliver Colorado River water.

The IID agreed to limit its California pre-1914 appropriative water rights in quantity and priority to the apportionments and priorities contained in the Seven-Party Agreement. Following execution of the Seven-Party Agreement, the IID filed eight California applications between 1933 and 1936 to appropriate water pursuant to the California Water Commission Act. The IID filed such applications without waiving its rights as a pre-1914 appropriator, and the applications sought rights to the same quantity of Colorado water as had been originally appropriated—over 7 million acre-feet annually. However, the applications also incorporated the terms of the Seven-Party Agreement, thus incorporating the apportionment and priority parameters of the Seven-Party Agreement into IID's appropriative applications. Permits were granted on the applications in 1950.

At the time the IID entered into its contract with the Secretary of the Interior, it was anticipated that the lands to be served with Colorado River water in the Coachella Valley to the north would become a part of the IID. However, the Coachella farmers eventually decided that they preferred to have their own delivery contract with the Secretary, and an action was brought by the Coachella Valley Water District to protest the IID's court validation of the 1932 IID water service and repayment contract with the Secretary of the Interior. In 1934, IID and Coachella Valley Water District executed a compromise agreement which paved the way for Coachella Valley Water District to have its own contract with the Secretary provided it subordinated its Colorado River entitlement, in perpetuity, to the IID entitlement. In other words, within the third, sixth and seventh priority agricultural pool, as set forth in the Seven-Party Agreement and the various California water delivery contracts, IID's water use takes precedence over Coachella Valley Water District's use. Under the third priority Coachella Valley Water District receives water out of the annual

3.85 million acre-feet agricultural pool after water uses by Palo Verde, Yuma Project, and IID are deducted.

Both the Colorado River Compact and the Boulder Canyon Project Act contained provisions that required satisfaction of "present perfected rights", or appropriative rights acquired pursuant to state law that were in existence prior to enacting legislation. IID's water rights can be classified as two types, "present perfected" and/or "contract." The 1964 Supreme Court decree *(Arizona vs. California, 373 U.S. 546)*, in conjunction with a supplemental 1979 decree (*Arizona vs. California, 439 U.S. 419, 429)*, awarded the IID a "present perfected right" to 2.6 million acre-feet of Colorado River Water annually. This legal decision reinforced the rights to this water that the IID had previously established through appropriations based on historical usage. These present perfected rights are essential to the IID as they guarantee priority access to Colorado River water before those without these rights (after Mexico's allotment has been satisfied). Of the Seven-Party Agreement entities, only Palo Verde Irrigation District (PVID), IID, and the Yuma Project (non-Indian portions) have present perfected rights. IID's remaining water allocations are based on "contract rights" from the December 1932 contract with the Secretary of the Interior (as modified by the 1934 Compromise Agreement with Coachella Valley Water District). Contract rights for all California entities are described in Article 17 of the 1932 Contract and in their individual contracts with the Secretary. While signatories to the 1931 Seven Party Agreement, Los Angeles, San Diego, and the County of San Diego have since merged their rights with those of the Metropolitan Water District of Southern California, who originally was granted a fourth priority 550,000 acre-feet allotment of California's 4.4 million acre-feet apportionment.

IMPERIAL IRRIGATION DISTRICT

WATER DEPARTMENT

Strategic Plan

2000

Mission Statement:

To provide the highest quality service at a fair and competitive price.

Goals and Objectives:

1. **Continually improve services to meet customer needs.**

   This goal is at the heart of the mission statement and focuses on understanding our customer needs and developing plans to meet customer expectations. It includes streamlining our processes, aligning out organization, improving customer interfaces, cross training, and developing standards that will provide a better business climate for our customers and employees.

2. **Efficiently provide water, power and other services to our customers.**

   This goal focuses on improving operations and maintenance processes and procedures, thereby improving reliability and providing more efficient water and power service to our customers. It includes the commitment of funds, and the improvement and efficient use of infrastructure resources.

3. **Enhance water and power reliability.**

   This goal focuses on protecting our water and power rights. This includes the planning, acquisition and efficient use of these resources for present and future needs.

4. **Improve communication.**

   This goal focuses on improving communications among the board, staff and public. It includes both internal and external communications and setting standard guideline for documentation, meetings and presentations.

5. **Strengthen and improve employee / employer relations.**

   To accomplish this goal IID must mentor its employees through training programs, awareness programs and career development.

6. **Upgrade Facilities**

   This goal encompasses needed improvements to all company facilities. It includes identifying functional needs, identifying regulatory requirements (Uniform Building Code, ADA, etc.), identifying problems, and putting in place a short-term and long- plan to replace and update facilities in a cost-effective manner.

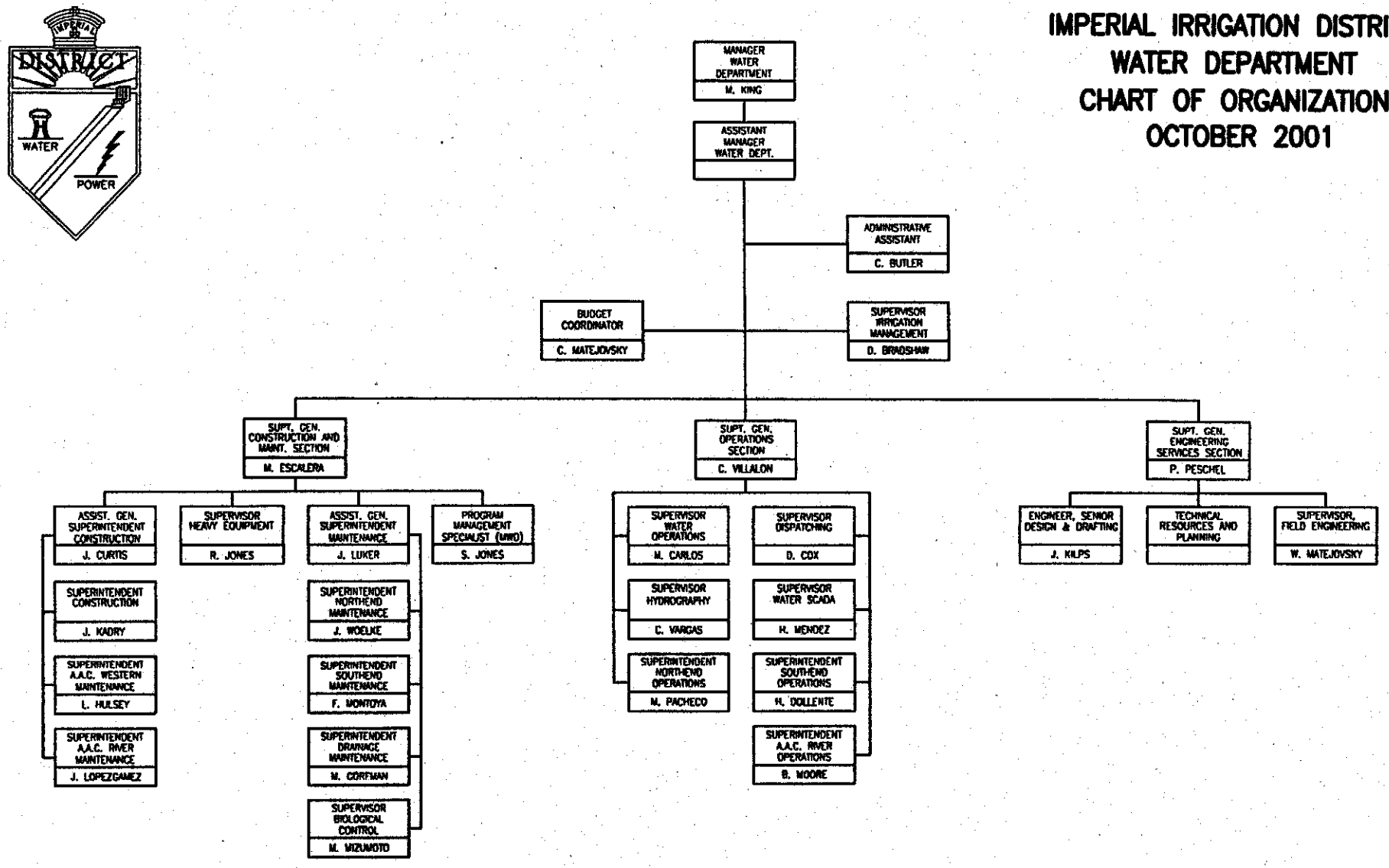
7. **Develop a plan to economically meet staffing requirements utilizing internal and external sources.**

   This goal addresses the need to increase customer base and promote economic development.

8. **Develop new services to increase customer base and support / facilitate economic development**

   This goal focuses on increasing the revenue base through new or expanded complimentary services. It includes creating an expanded economic development policy.

IMPERIAL IRRIGATION DISTRICT
WATER DEPARTMENT
CHART OF ORGANIZATION
OCTOBER 2001



E. WATER DEPARTMENT SECTIONS

1. Water Administration

The Water Administration Section is comprised of the Water Manager, Assistant Manager, Budget Coordinator, and the Irrigation Management Unit. The Water Manager and the Assistant Manager are responsible for the administration, maintenance, and operation of the entire water department. The Budget Coordinator compiles, presents and maintains the department's annual budget and budget variance reports; provides reporting to departmental personnel involved in budget development and monitoring of budget variances. The Irrigation Management Unit is involved in various on-farm projects with the landowners and projects associated with the IID/MWD Water Conservation Agreement.

2. Construction & Maintenance Section

The Construction & Maintenance Section's main responsibility is to provide conveyance for the delivery of water to the customers of the Water Department. The section is accountable for the maintenance and construction of all Water Department Facilities. This includes the scheduling and monitoring of the Water Department, countywide Weed Control Program by outside contractors. The section is responsible for the Water Department's Irrigation System including the installation/maintenance of pipe lines, county road crossing siphons and private siphon crossings, open channel canals, laterals and deliveries. The section is also responsible for the Water Department's Drainage System including the installation/maintenance of pipelines, county road crossing siphons, private siphon crossings, open channel main drains and division drains as well as the Salton Sea.

The Construction & Maintenance Section is comprised of three main units which are administered and supervised by the General Superintendent. The three units are the Maintenance Unit, which is responsible for the maintenance, repair and functional operation of facilities and is divided into two geographical areas, Northend Division and Southwest Division and Drainage. The Construction Management Unit, which is responsible for the construction, replacement and improvement of facilities and is comprised of three main divisions, Construction, Western and River. The Heavy Equipment Operation Unit is located at headquarters and is responsible for all operation and availability of heavy equipment.

3. Water Operations Section

Water Dispatching / Water Operations Units

The Water Dispatching and Water Operations Units share the responsibility of controlling the main canal system. The Dispatching Unit is responsible for estimating water demand and ordering irrigation water for the Imperial Valley. The Dispatching Unit relays the IID and the CVWD water requests to Imperial Dam. Imperial Dam forwards the requests to the USBR. The Water Dispatching Unit uses a SCADA system to control and regulate the main canals. Divisions inform Water Dispatching of the required order

at the head of each lateral canal. Water Dispatching then works with the Hydrographers from Water Operations to delivery and document water delivered into the laterals and direct deliveries of main canal system.

River Division
River Division is responsible for the operation and maintenance of Imperial Dam, Senator Wash, Laguna Dam and all related river facilities in the Imperial Dam area. River Division operates and maintains the All American Canal from Imperial Dam to the Pilot Knob Check. River Division is responsible for providing water delivery to all of the lower Colorado River water users in the Imperial Dam area. River Division works with the USBR to schedule river flow releases.

Southend & Northend Divisions
Irrigation operations are organized into 2 areas, the Northend and Southend Divisions. Within the two Divisions, water ordering areas are separated into more manageable units. Southend Division water orders are placed for the Holtville and Southwest water order areas. The Northend Division water orders are placed for the Brawley, Calipatria and Westmorland water order areas. These divisions are responsible for collecting and scheduling water orders in their geographic jurisdictions. Division Coordinators receive and schedule water orders for the Zanjeros to delivery.

SCADA Unit
The Water SCADA Unit has responsibility for the installation, maintenance, repair, and replacement of the IID Water Department canal automation equipment. This includes equipment and software installed under the IID/MWD Water Conservation Programs as well as IID funded system improvements. SCADA equipment is installed in many parts of the water delivery system; from Imperial Dam, along the All-American Canal and each main canal, at each system reservoir, within the interceptor projects, and at the Salton Sea.

Hydrography Unit
The Hydrography Unit has two main activities: data collection from IID monitoring sites and sensor reading validation of MWD/IID monitoring sites. The data is collected from approximately 331 sites. It is collected manually at 233 sites and electronically at 98 sites. The collected data includes piezometric well water elevation, water sampling, canal stage and flow and weather variables. During the data processing procedures, the data integrity is preserved and other variables are calculated or determined, like flow and water quality parameters. The sensor reading validation is performed on 116 MWD/IID monitoring sites, and it consists in checking the proper operation of water level and gate position sensors.

4. Technical Services Section

Design and Drafting Unit
The Design and Drafting Unit is responsible for designing projects and preparing appropriate paperwork and data entry for irrigation and drainage facilities (a small portion of their work also involves power projects) and for designing and/or reviewing the designs and reports/documents that may involve District system modifications caused by other entities, developers, etc.

Project involvement is from inception (feasibility level) to closure (data archiving). Because of this, this group is also heavily involved in the entire project process including legal issues and negotiations (including financial), and agreement and permit preparations and environmental processing. This group functions as the contractor's (construction section) engineer (design assistance and inspection) and performs quality assurance and project coordination.

This group also has administrative oversight over engineering consultants. Additionally, they are the District's liaison for issues involving irrigation and drainage facilities, policies and procedures. This group also has the responsibility of maintaining (updating and revising) standard documents and resources such as tile drain maps, general and ownership plat books, and tie-cards for survey monuments as well as providing miscellaneous visual aids for public information support and Board issues.

Field Engineering Unit
The Field Engineering Unit is responsible for surveying projects and preparing appropriate paperwork and data entry for irrigation and drainage facilities and a large number of power projects and for surveying and/or reviewing the surveying and reports/documents involving District system modifications caused by other entities, developers, etc. Their primary tasks are survey investigations, survey construction staking, survey as-builts, legal surveys, and construction inspection including construction support.

Project involvement is from inception (surveying investigations) to closure (data archiving). This group also functions as the contractor's (construction section) surveyor (construction staking and grade checking/quality control) and has administrative oversight over other surveying consultants. Additionally, they are the District's liaison for survey issues involving irrigation and drainage facilities, policies and procedures.

Technical Resources and Planning Unit
This group is responsible for water resource issues, protection of District interests through the review and commenting on various plans and documents (project and environmental), water quality issues and on-going IID/MWD water conservation verification and reporting.

Water resource issues being addressed include some of the following; Urban Water Management Plan, Salton Sea, transfer environmental documents, and system planning. Water quality issues and water quality projects include, wetlands project management and monitoring, District TMDL issues administrative oversight, testing, and document review, water reuse and reclamation, miscellaneous monitoring and reporting for IID facilities, and District liaison regarding water quality issues. The water quality function also involves the preparation of storm water prevention plans and preparation of grants.

Conservation issues involve monitoring of verification sites, ongoing analysis and quality control/assurance and reporting of verification data and sites, updating of the user manuals and completion of yearly conservation reports.

Miscellaneous technical administrative issues for this group involve protection of District interests through review of various County, City, miscellaneous agency, developer, etc., documents, plans, reports, environmental documents, etc. as it relates to the above issues and general District Water Department policies and standards.

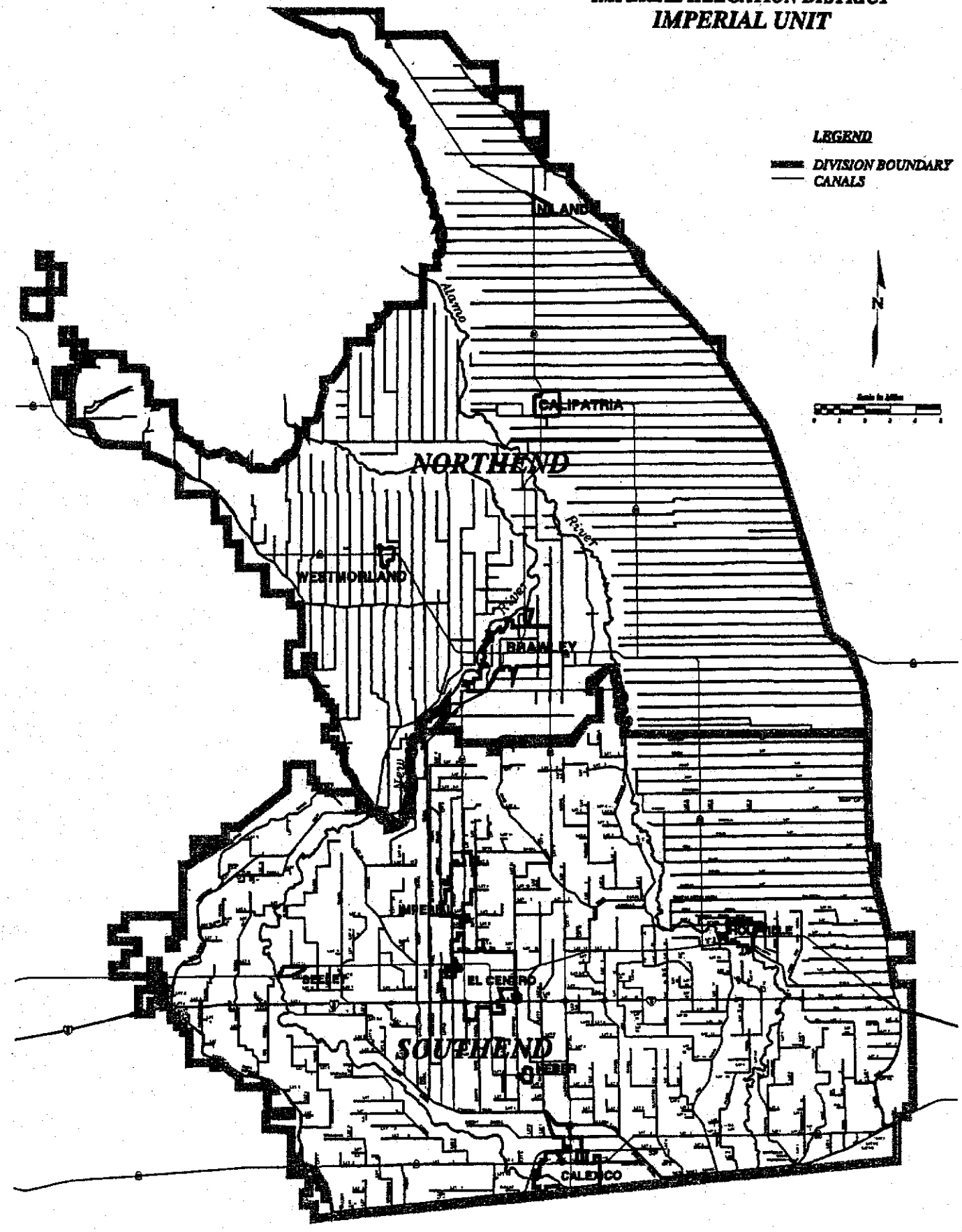
Administration
The administration group is responsible for overall management and supervision of the Engineering Services Section including addressing personnel and policy issues. Additionally, this group is heavily involved in the project process and related administrative issues.

Administrative issues in this realm include processing and authoring project paperwork, correspondence and related documents, creation of PM and PS orders and project activity elements and structure (including project scheduling and project financial status reporting), workflow modification, project coordination. Approval of project quotes, qualifications, proposals, and invoices also occurs in this area. This group is also heavily involved in agreement preparations, negotiations, work scope preparations (consultant and contract), contracting, consultant evaluations, and report preparation and review.

This group also creates and modifies policies and regulations with regard to project requirements, policy/regulation concerns and related issues. Overall section budgeting is also performed by this group. Additionally, reproduction, archiving, data management, and customer sales are the responsibility of this group.

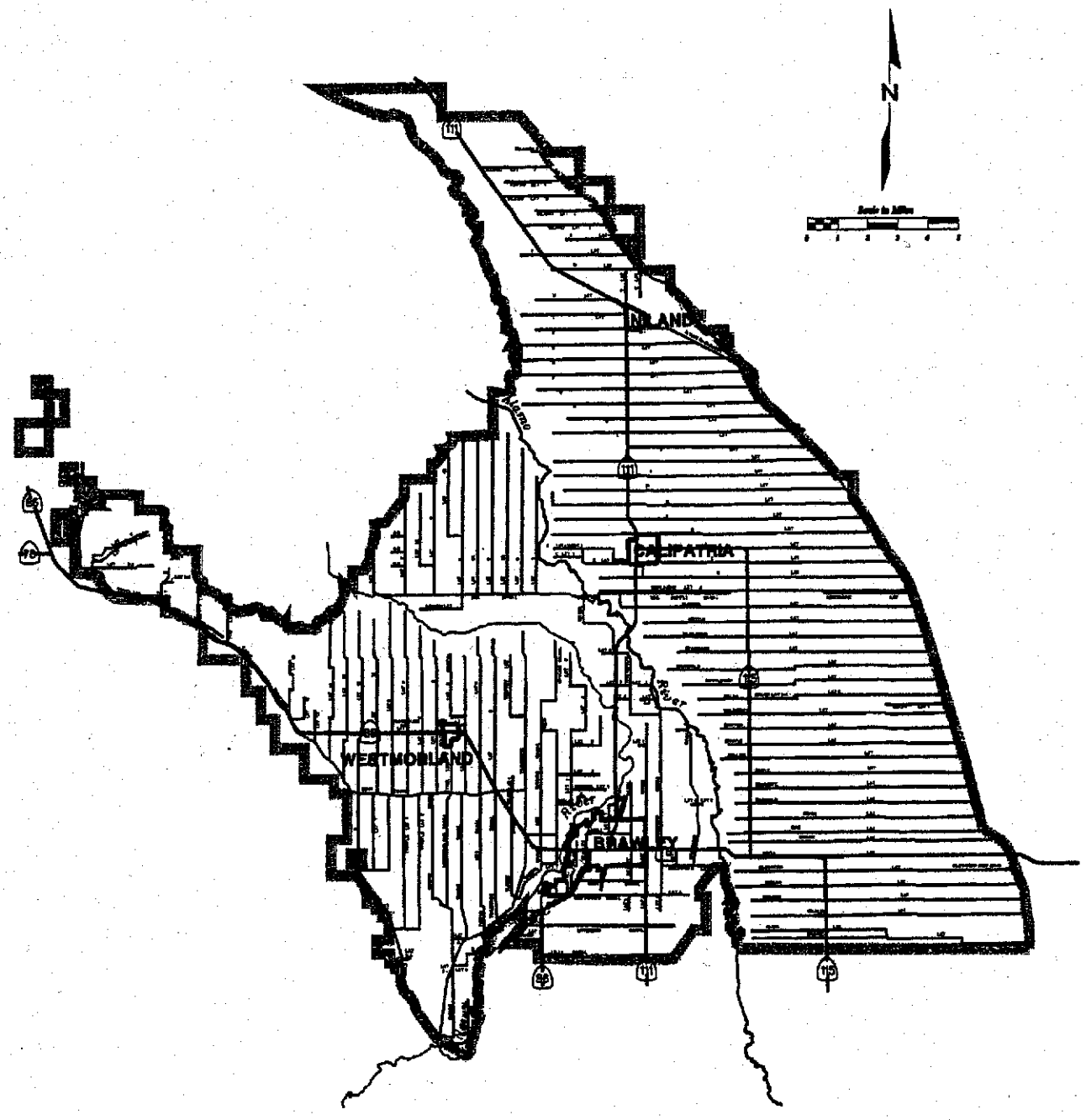
WATER INFORMATION 2000

II. IID LOCATION MAPS

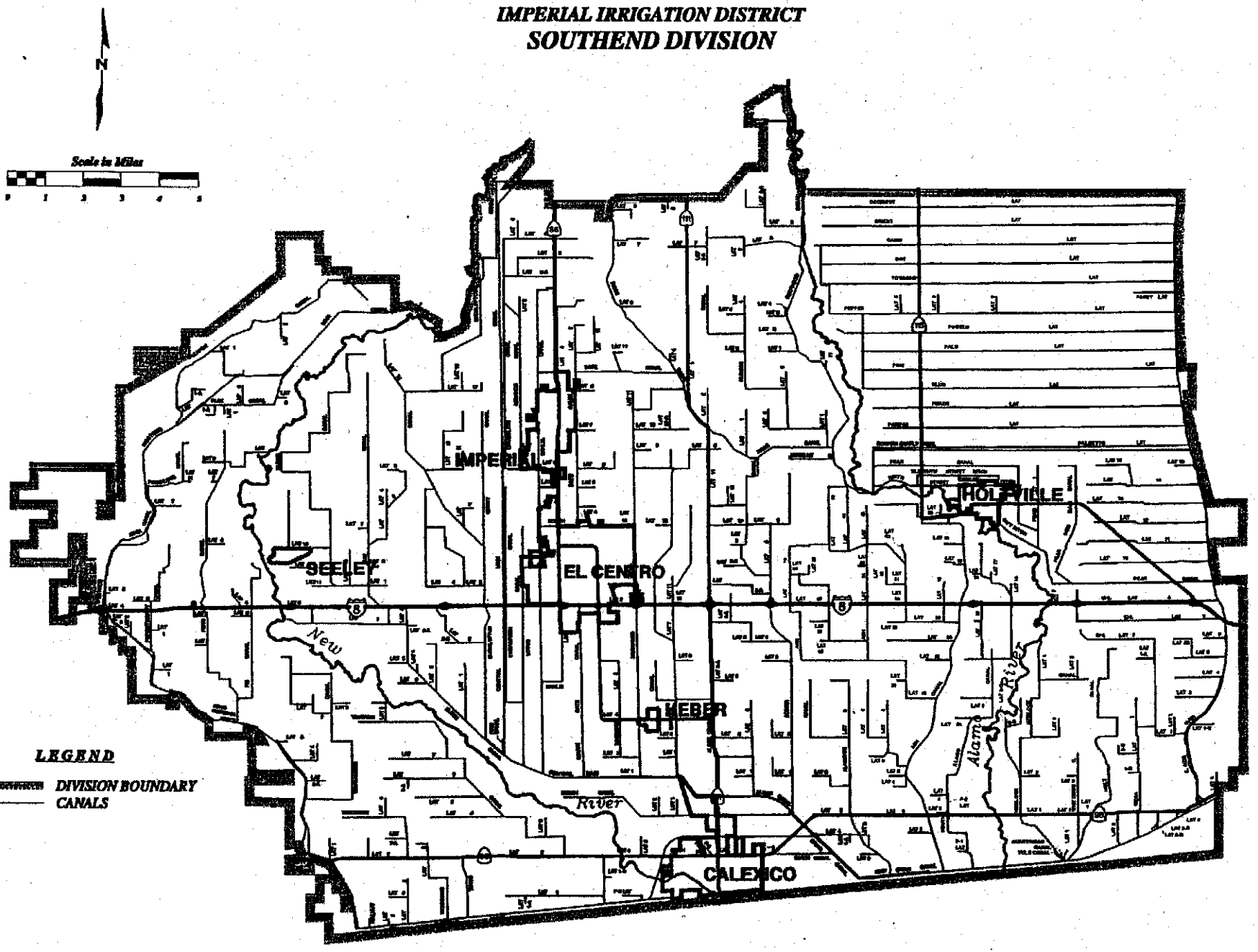

IMPERIAL IRRIGATION DISTRICT
IMPERIAL UNIT
LEGEND
DIVISION BOUNDARY
CANALS
N
CALIPATRIA
NORTHEND
WESTMORLAND
BRAWLEY
EL CENTRO
SOUTHEND
CALEXICO

IMPERIAL IRRIGATION DISTRICT

NORTHEND DIVISION



IMPERIAL IRRIGATION DISTRICT
SOUTHEND DIVISION



WATER INFORMATION 2000

III. IRRIGATION SYSTEM INFRASTRUCTURE

ANNUAL SUMMARY

2000

Total Miles of Canals and Drains

	Earthen	Concrete Lined	Pipeline	TOTAL
All American Canal	79.72	0.00	0.00	**79.72**
All American Drains	37.41	0.00	12.70	**50.11**
Main Canals	129.39	20.90	0.00	**150.29**
Lateral Canals	328.88	1,087.99	20.94	**1,437.81**
Drains	1,298.14	1.18	106.62	**1,405.94**
TOTAL	**1,873.54**	**1,110.07**	**140.26**	**3,123.87**

ANNUAL SUMMARY

2000

Total Miles of Main Canals by Division

DIVISIONS	Earthen		Concrete Lined		Pipeline		TOTAL
	miles	%	miles	%	miles	%	miles
NORTHEND	55.09	81.4%	12.59	18.6%	0.00	0.0%	**67.68**
SOUTHEND	74.30	89.9%	8.31	10.1%	0.00	0.0%	**82.61**
ALL-AMERICAN CANAL	79.72	100.0%	0.00	0.0%	0.00	0.0%	**79.72**
TOTAL:	**209.11**	**90.9%**	**20.90**	**9.1%**	**0.00**	**0.0%**	**230.01**

ANNUAL SUMMARY
2000

Total Miles of Lateral Canals by Division

DIVISIONS	Earthen		Concrete Lined		Pipeline		TOTAL
	miles	%	miles	%	miles	%	miles
NORTHEND	222.85	30.7%	491.71	67.8%	10.47	1.4%	**725.04**
SOUTHEND	104.49	14.7%	597.81	83.9%	10.47	1.5%	**712.77**
TOTAL	**327.34**	**22.8%**	**1,089.52**	**75.8%**	**20.94**	**1.5%**	**1,437.81**

ANNUAL SUMMARY

2000

Total Miles of Drains by Division

DIVISIONS	Earthen		Concrete Lined		Pipeline		TOTAL
	miles	%	miles	%	miles	%	miles
NORTHEND	612.07	95.5%	0.58	0.1%	28.18	4.4%	**640.83**
SOUTHEND	236.52	98.5%	0.60	0.2%	3.00	1.2%	**240.12**
DRAINAGE	450.08	90.6%	0.60	0.1%	46.32	9.3%	**497.00**
ALL AMERICAN CANAL	37.41	73.8%	0.60	1.2%	12.70	25.0%	**50.71**
TOTAL	**1,336.08**	**93.5%**	**2.38**	**0.2%**	**90.20**	**6.3%**	**1,428.66**

Annual Summary
2000

Structural Inventory
of
Mains, Laterals, and Drains

	Concrete	Rubble	Wood	Others	Totals
Main Canals - All Divisions					
Deliveries	199	12	2	0	**213**
Checks	57	2	0	0	**59**
Lateral Headings	134	8	0	0	**142**
Control Structures	94	4	1	0	**99**
Bridges	5	0	18	4	**27**
Siphons (includes Co. Xings)	24	1	0	0	**25**
Moss Pipes	6	0	0	2	**8**
Storm Spillways	4	4	0	0	**8**
Flumes	0	0	0	1	**1**
Sub-total Main Canals	**523**	**31**	**21**	**7**	**582**
All American Canal	145	13	2	0	**160**
Total Main Canals	**668**	**44**	**23**	**7**	**742**
Lateral Canals - All Divisions					
Deliveries	5,231	124	25	1	5,381
Checks	3,190	157	19	0	3,366
Lateral Headings	327	23	1	0	351
Control Structures	650	42	16	6	714
Bridges	29	4	25	0	58
Siphons (includes Co. Xings)	128	1	0	4	133
Moss Pipes	117	0	4	1	122
Storm Spillways	32	4	0	0	36
Flumes	4	0	0	0	4
Total Lateral Canals	**9,708**	**355**	**90**	**12**	**10,165**
Drains - All Divisions					
Control Structures	393	7	12	7	419
Bridges	5	0	14	0	19
Siphons	578	8	5	39	630
Flumes	2	0	0	1	3
Maintenance Crossings	7	0	0	1	8
Deliveries	4	0	0	0	4
Checks	1	0	0	0	1
Totals Drains	**990**	**15**	**31**	**48**	**1,084**

Annual Summary

2000

Structures Installed, Replaced and Removed

Installed:	2000	1999
Bridges	0	0
Checks	0	1
Control Structures	5	6
County Road Crossings	7	0
Deliveries	4	3
Headings	2	0
Headwalls	7	6
I&D District Pumps	0	0
Maintenance Crossings	0	0
Moss Pipes	0	0
Outlets	0	0
Private Sumps	0	0
Railroad Crossings	0	0
Siphons	2	2
State Highway Crossings	0	0
Storm Spillways	2	1
Surface Drainage Sumps	0	0
Tile Sumps	0	0

Replaced:	2000	1999
Bridges	0	0
Checks	7	1
Control Structure	5	0
Deliveries	18	2
Flumes	0	0
Outlets	3	1
Maintenance Crossings	3	6
Siphons	11	4

Removed:	2000	1999
I&D O&M District Pumps	0	0
Private Sumps	0	0
Tile Sumps	0	0

HISTORICAL SUMMARY

Miles of Concrete Lined Laterals

	Privately Owned Laterals		Imperial Irrigation District Owned-Concrete Lined Laterals							
	Private Maintenance		Private Maintenance		IID Maintenance		MWD Maintenance		Total	*Total*
Year	Annual	*Cumulative*	Annual	*Cumulative*	Annual	*Cumulative*	Annual	*Cumulative*	Annual	*Cumulative*
1956	125.60	*424.50*	4.05	*5.20*	1.66	*2.96*			**131.31**	***432.66***
1957	128.90	*553.50*	4.53	*9.73*	3.15	*6.11*			**136.58**	***569.34***
1958	98.40	*651.50*	4.97	*14.70*	3.11	*9.22*			**106.48**	***675.42***
1959	115.70	*767.50*	7.56	*22.26*	4.07	*13.29*			**127.33**	***803.05***
1960	122.10	*889.60*	4.60	*26.86*	3.62	*16.91*			**130.32**	***933.37***
1961	89.50	*979.10*	4.41	*31.27*	10.10	*27.01*			**104.01**	***1,037.38***
1962	93.30	*1,072.40*	1.60	*32.87*	17.67	*44.68*			**112.57**	***1,149.95***
1963	118.30	*1,190.70*	5.74	*38.61*	25.54	*72.22*			**151.58**	***1,301.53***
1964	110.80	*1,301.50*	3.53	*42.14*	50.52	*122.74*			**164.85**	***1,466.38***
1965	80.70	*1,382.20*	0.76	*42.90*	54.35	*177.09*			**135.81**	***1,602.19***
1966	72.30	*1,454.50*	0.75	*43.65*	68.20	*245.33*			**141.29**	***1,743.48***
1967	62.90	*1,517.40*	0.40	*44.05*	60.24	*305.57*			**123.54**	***1,867.02***
1968	67.50	*1,584.90*	1.02	*45.07*	51.68	*357.25*			**120.20**	***1,987.22***
1969	73.00	*1,657.90*	0.27	*45.34*	56.11	*413.36*			**129.38**	***2,116.60***
1970	66.10	*1,724.00*	0.61	*45.95*	38.74	*452.10*			**105.45**	***2,222.05***
1971	63.10	*1,787.10*	0.93	*46.88*	35.85	*487.95*			**99.88**	***2,321.93***
1972	61.20	*1,848.30*	1.21	*48.09*	36.20	*524.15*			**98.61**	***2,420.54***
1973	71.50	*1,919.80*	1.11	*49.20*	29.94	*554.09*			**102.55**	***2,523.09***
1974	94.50	*2,014.30*	1.00	*50.20*	31.17	*585.26*			**126.67**	***2,649.76***
1975	56.80	*2,071.10*	2.44	*52.64*	38.39	*623.65*			**97.63**	***2,747.39***
1976	68.00	*2,139.10*	0.77	*53.41*	38.25	*661.90*			**107.02**	***2,854.41***
1977	60.30	*2,199.40*	0.30	*53.71*	34.63	*696.53*			**95.23**	***2,949.64***
1978	33.40	*2,232.80*	0.00	*53.71*	19.20	*715.73*			**52.60**	***3,002.24***
1979	25.50	*2,258.30*	0.00	*53.71*	21.79	*737.52*			**47.29**	***3,049.53***
1980	37.40	*2,295.70*	0.00	*53.71*	21.36	*758.88*			**58.76**	***3,108.29***
1981	43.60	*2,339.30*	0.00	*53.71*	27.30	*786.18*			**70.90**	***3,179.19***
1982	36.20	*2,375.50*	0.00	*53.71*	18.52	*804.70*			**54.72**	***3,233.91***
1983	24.10	*2,399.60*	0.00	*53.71*	23.08	*827.78*			**47.18**	***3,281.09***
1984	21.40	*2,421.00*	0.00	*53.71*	43.49	*871.27*			**64.89**	***3,345.98***
1985	24.50	*2,445.80*	0.00	*53.71*	30.52	*901.79*			**55.32**	***3,401.30***
1986	10.40	*2,456.20*	0.00	*53.71*	6.23	*908.02*			**16.63**	***3,417.93***
1987	9.50	*2,465.70*	0.00	*53.71*	0.22	*908.24*			**9.72**	***3,427.65***
1988	8.30	*2,474.00*	0.00	*53.71*	0.58	*908.82*			**8.88**	***3,436.53***
1989	12.40	*2,486.40*	0.00	*53.71*	2.56	*911.38*			**14.96**	***3,451.49***
1990	4.80	*2,491.20*	0.00	*53.71*	0.00	*911.38*	66.40	*66.40*	**71.20**	***3,522.69***
1991	8.30	*2,499.50*	0.00	*53.71*	0.00	*911.38*	56.56	*122.96*	**64.86**	***3,587.55***
1992	3.00	*2,502.50*	0.00	*53.71*	0.00	*911.38*	27.39	*150.35*	**30.39**	***3,617.94***
1993	0.90	*2,503.40*	0.00	*53.71*	0.00	*911.38*	41.62	*191.97*	**42.52**	***3,660.46***
1994	4.20	*2,507.60*	0.00	*53.71*	0.00	*911.38*	14.38	*206.35*	**18.58**	***3,679.04***
1995	0.00	*2,507.60*	0.00	*53.71*	0.00	*911.38*	0.00	*206.35*	**0.00**	***3,679.04***
1996	0.00	*2,507.60*	0.00	*53.71*	0.00	*911.38*	0.00	*206.35*	**0.00**	***3,679.04***
1997	0.00	*2,507.60*	0.00	*53.71*	1.58	*912.96*	0.00	*206.35*	**0.00**	***3,680.62***
1998	0.00	*2,507.60*	0.00	*53.71*	0.24	*913.20*	0.00	*206.35*	**0.00**	***3,680.86***
1999	0.00	*2,507.60*	0.00	*53.71*	0.00	*913.20*	0.00	*206.35*	**0.00**	***3,680.86***
2000	0.00	*2,507.60*	0.00	*53.71*	0.00	*913.20*	0.00	*206.35*	**0.00**	***3,680.86***

Historical Summary

Pipeline Drain Installation

Year	Total Annual Installation (miles)	*Cumulative Installation (miles) (a)*
1962	1.38	*22.51*
1963	9.74	*32.25*
1964	5.38	*37.63*
1965	4.92	*42.55*
1966	13.64	*56.19*
1967	7.11	*63.30*
1968	6.24	*69.54*
1969	7.37	*76.91*
1970	3.69	*80.60*
1971	2.16	*82.76*
1972	5.54	*88.30*
1973	1.83	*90.13*
1974	5.31	*95.44*
1975	6.47	*101.91*
1976	1.11	*103.02*
1977	1.36	*104.38*
1978	0.90	*105.28*
1979	1.12	*106.40*
1980	2.13	*108.53*
1981	1.96	*110.49*
1982	0.49	*110.98*
1983	0.79	*111.77*
1984	0.79	*112.56*
1985	0.10	*112.66*
1986	0.96	*113.62*
1987	0.46	*114.08*
1988	0.00	*114.08*
1899	0.62	*114.70*
1990	0.42	*115.12*
1991	0.17	*115.29*
1992	0.10	*115.39*
1993	1.43	*116.82*
1994	0.42	*117.24*
1995	0.00	*117.24*
1996	1.03	*118.27*
1997	0.54	*118.81*
1998	0.31	*119.12*
1999	0.21	*119.33*
2000	0.00	*119.33*

(a) These values reflect total pipeline drain installation miles, not to be confused with actual existing drain miles. Actual pipeline drain miles do not make any distinction between single or parallel drain miles and do not account for abandoned pipeline drains.

Historical Summary

Tile Installation

Year	Tile Installed (miles)	Cumulative (miles)	Acres Tiled	Cumulative Acres Tiled
1939		332.77		12,200
1940	66.84	399.61	4,040	16,240
1941	46.08	445.69	2,880	19,120
1942	37.15	482.84	2,040	21,160
1943	53.24	536.08	3,960	25,120
1944	60.00	596.08	1,880	27,000
1945	55.00	651.08	3,240	30,240
1946	133.25	784.33	5,480	35,720
1947	325.00	1,109.33	17,920	53,640
1948	393.80	1,503.13	17,220	70,860
1949	455.62	1,958.75	21,670	92,530
1950	458.00	2,416.75	22,610	115,140
1951	603.10	3,019.85	22,665	137,805
1952	709.54	3,729.39	23,345	161,150
1953	512.19	4,241.58	16,000	177,150
1954	491.12	4,732.70	14,960	192,110
1955	526.92	5,259.62	15,160	207,270
1956	519.36	5,778.98	13,290	220,560
1957	560.97	6,339.95	12,200	232,760
1958	490.88	6,830.83	10,690	243,450
1959	546.54	7,377.37	9,550	253,000
1960	794.05	8,171.42	15,713	268,713
1961	857.51	9,028.93	17,921	286,634
1962	611.01	9,639.94	11,485	298,119
1963	766.02	10,405.96	10,129	308,248
1964	993.97	11,399.93	12,707	320,955
1965	734.52	12,134.45	7,958	328,913
1966	527.38	12,661.83	6,634	335,547
1967	634	13,295.83	6,419	341,966
1968	754.33	14,050.16	6,046	348,012
1969	808.64	14,858.80	6,010	354,022
1970	1,036.61	15,895.41	8,230	362,252
1971	919.34	16,814.75	7,552	369,804
1972	1,019.40	17,834.15	7,311	377,115
1973	1,154.35	18,988.50	8,031	385,146
1974	1,191.96	20,180.46	3,734	388,880
1975	1,223.22	21,403.68	6,258	395,138

Historical Summary

Tile Installation (continued)

Year	Tile Installed (miles)	Cumulative (miles)	Acres Tiled	Cumulative Acres Tiled
1976	1,530.67	22,934.35	7,941	403,079
1977	822.31	23,756.66	3,441	406,520
1978	958.32	24,714.98	5,719	412,239
1979	1,234.11	25,949.09	6,636	418,875
1980	1,061.32	27,010.41	3,873	422,748
1981	865.80	27,876.21	4,839	427,587
1982	631.54	28,507.75	1,950	429,537
1983	463.88	28,971.63	1,687	431,224
1984	565.88	29,537.51	1,633	432,857
1985	654.11	30,191.62	1,035	433,892
1986	455.14	30,646.76	1,496	435,388
1987	374.44	31,021.20	1,919	437,307
1988	530.31	31,551.51	1,586	438,893
1989	342.46	31,893.97	828	439,721
1990	332.76	32,226.73	952	440,673
1991	312.07	32,538.80	744	441,417
1992	182.22	32,721.02	168	441,585
1993	242.15	32,963.17	359	441,944
1994	212.56	33,175.73	470	442,414
1995	217.28	33,393.01	160	442,574
1996	206.56	33,599.57	137	442,711
1997	222.35	33,821.92	170	442,881
1998	177.82	33,999.74	0	442,881
1999	191.46	34,191.20	40	442,921
2000	217.12	34,408.32	100	443,021

Annual Summary

Imperial Irrigation District Gross Acreage Within the All-American Canal Service Area Boundary

	Imperial Unit (acres)	East Mesa Unit (acres)	West Mesa Unit (acres)	Pilot Knob Unit (acres)	TOTAL (acres)
Included Lands	627,827	201,938	67,545	15,478	**912,788**
Included Lands - No Water Rights	63,933 *	0	0	0	**63,933**
Not Inluded Lands	2,586	17,491	58,817	6,022	**84,916**
Total Area Per Unit	**694,346**	**219,429**	**126,362**	**21,500**	**1,061,637**

Note:

INCLUDED LANDS are lands within the Unit that are within the AAC Service Area Boundary and the IID and are eligible to use Colorado River water.

INCLUDED LANDS (NO WATER RIGHTS) are lands within the Unit for which the IID Board of Directors has approved a petition for inclusion with the IID Service Area Boundary but the lands have NO water rights and thus are NOT eligible to use Colorado River water.

NOT INCLUDED LANDS are lands within the Unit and the AAC Service Area Boundary, but are not within the IID and are; therefore, not eligible to use Colorado River water.

* Resolution No. 107-67

WATER INFORMATION 2000

IV. IMPERIAL IRRIGATION DISTRICT WATER CONSERVATION PROGRAMS

IV. Imperial Irrigation District Water Conservation Programs

A. 2000 Status of Imperial Irrigation District Water Conservation Programs

At the end of 1999 the Boards of Directors of the Imperial Irrigation District, Coachella Valley Water District, and Metropolitan Water District of Southern California approved the *Key Terms for Quantification Settlement among the State of California, Imperial Irrigation District, Coachella Irrigation District, and Metropolitan Water District of Southern California* as the basis for obtaining public input regarding a Quantification Settlement Agreement (QSA). From this input and negotiations the QSA parties are drafting a series of legal agreements that together will comprise a QSA. In general, the QSA is a proposed agreement to reallocate a portion of Colorado River water and implement certain practices during the quantification period (which could last from 35 to 75 years) as a means of resolving differences among Colorado River contractors regarding water allocations. The QSA is designed to enhance the reliability of Colorado River supplies to each of the participating agencies and provide part of the mechanism for California to limit its diversions of Colorado River water to its 4.4 million acre-feet per year apportionment. The QSA includes provisions that would:

1. Voluntarily cap the share of Colorado River water that may be diverted and put to beneficial use by Coachella Valley Water District and Imperial Irrigation District.
2. Facilitate various conservation and transfer agreements.
3. Modify existing conservation agreements to fit within the terms of the QSA.
4. Establish other conditions that must be in place before the approval of the QSA.

The quantification of agency specific diversion rights and implementation of voluntary conservation measures and water transfers/exchanges by participating agencies would result in the annual, collective transfer of water from agricultural uses, principally in the Imperial Irrigation District service area, to other participating agencies. Water conservation would be achieved through a variety of means, including on-farm and system improvement measures within the Imperial Irrigation District service area and main canal linings.

Under the QSA, Imperial Irrigation District would agree to limit its Priority 3a diversion of Colorado River water to 3.1 million acre-feet per year. This consensual limitation constitutes a forbearance of Imperial Irrigation District's right to divert, for beneficial use, up to the entire balance (after Priorities 1 and 2) of the 3.85 million acre-feet per year amount allocated in the aggregate to Priorities 1, 2, and 3. This forbearance increases the certainty of water availability to agencies with lower priorities. Water conserved within Imperial Irrigation District's service area would be available for use by Coachella Valley Water District, Metropolitan Water District of Southern California, or San Diego County Water Authority. If the QSA is approved and implemented, portions of the Imperial Irrigation District/Metropolitan Water District of Southern California and Imperial Irrigation District/San Diego County Water Authority water conservation and transfer agreements would be modified to reflect changes in diversion point and recipient of some of the conserved water, but the cumulative total volumes of the transfers would not be affected.

B. Historical Summary – Past Water Conservation Programs

The Imperial Irrigation District and its agricultural water users have a long history of efficient water use and agricultural based water conservation or demand management programs. The Imperial Irrigation District and its agricultural water users together have invested more than $625 million towards water conservation efforts over the past 50 years. Completed programs include concrete lining of canals and laterals, seepage recovery systems, regulating reservoirs, lateral interceptors, distribution system automation, on-farm tailwater recovery systems, 12-Hour Deliveries, non-leak gates, irrigation water management, and several operational, administrative, educational, and cooperative programs aimed at reducing operational losses and recovering discharges.

In 1940, an Imperial Valley Drainage Advisory Committee was formed with representatives of the Imperial Irrigation District, U.S. Department of Agriculture Soil Conservation Service, Farm Credit Administration, and the University of California. The committee supervised a 10-year investigation of drainage methods and determined criteria for Imperial Valley drainage. From 1940 through 2000, the Imperial Irrigation District has cumulatively designed/installed an estimated 34,408 miles of on-farm tile drainage.

In 1947, seepage recovery Drain No. 2 was installed along the All American Canal. Each year approximately 13,410 acre-feet (ten year average) of water is returned to the All American Canal from seepage recovery Drain No. 2. In 1948, seepage recovery Drain No. 1 was constructed along the All American Canal. Each year approximately 2,370 acre-feet (ten year average) of water is returned to the All American Canal from seepage recovery Drain No. 1. Between 1951 and 1965, All American Drainage Pumps Nos. 4, 5, 6, 11 and 12 were installed. In 1989, All American Drainage Pump No. 34 was installed. Each year the amount of water returned to the All American Canal from All American Drainage Pumps Nos. 4, 5, 6, 11, 12, and 34 is approximately 11,150 acre-feet (ten year average). The combined annual average water conserved from all of these All American Canal seepage recovery systems equals approximately 26,930 acre-feet of water.

The Imperial Irrigation District began a program to concrete line canals and laterals in 1954. From 1956 through 2000, the Imperial Irrigation District concrete lined approximately 3,680 miles of canal and laterals. This includes approximately: (a) 2,507 miles of privately owned and maintained laterals, (b) 913 miles of Imperial Irrigation District owned and maintained canals and laterals, and (c) approximately 206 miles of Imperial Irrigation District owned and maintained with funding from Metropolitan Water District of Southern California canals and laterals. From 1962 through 2000, the Imperial Irrigation District cumulatively installed approximately 119 miles of drain pipelines.

Imperial Irrigation District's first telemetry system, used to remotely-control flow structures at distant sites, was first installed in 1958. The last site added to the telemetry system was installed in 1981. The original telemetry system used land-based telephone lines to communicate with and remotely operate sites along the upper reaches of the main canal system. By 1990, the Imperial Irrigation District had automated twenty-five structures. Check structures and turnouts were automated along the All American Canal along with check structures on the upper reaches of the East Highline, Central Main, and Westside Main Canals. Automation included installing remote control equipment that provided control of the site from Imperial Headquarters. With funding from the IID/MWD Water Conservation and Transfer Program, Imperial Irrigation District's system automation was upgraded in the 1990s: a new Water Control Center was constructed; the remote-control equipment was replaced with modern control-computers, data gathering and control remote-site devices, and upgraded sensors; and the telephone lines were replaced with a radio/microwave

communication network. The Imperial Irrigation District's Supervisory Control and Data Acquisition System (SCADA) includes: control-computers; communication network; remote-site data gathering and control devices, Remote Terminal Unit (RTU) or Programmable Logic Controllers (PLC); and measurement sensors.

Between 1967 and 1974, the Imperial Irrigation District constructed 12 seepage recovery pump systems involving approximately six miles of seepage recovery lines (twelve 0.5 mile sections) parallel to the East Highline Canal. Water entering these lines is pumped back into the canal for delivery to farms. The combined annual average water conserved from all of these East Highline Canal seepage recovery systems equals approximately 16,260 acre-feet of water (ten year average).

The Imperial Irrigation District has constructed ten reservoirs to conserve and balance flows. The Singh Reservoir started diversions in 1976, has a storage capacity of 323 acre-feet, regulates water from the East Highline Canal, and is located next to the Vail Supply Heading. The Sheldon Reservoir started diversions in 1977, has a storage capacity of 476 acre-feet, and services the Westside Main Canal. The Sheldon Reservoir is located on the Westside Main Canal at the intersection of the Thistle Canal Heading, Sumac Canal Heading, and Sumac Lateral 1 Heading. The Fudge Reservoir started diversions in 1982, has a storage capacity of 300 acre-feet, and is located adjacent to the Central Main Canal. The Sperber Reservoir started diversions in 1983, has a storage capacity of 470 acre-feet, and is located on the Rositas Canal at the intersection of the Rose Canal and Rubber Canal. Water from the Rositas Canal is held and released when needed into the Rose Canal or Rubber Canal. The Imperial Irrigation District completed construction and started operating the Carter Reservoir in 1988. The Carter Reservoir has a 350-acre-foot storage capacity, is located at the end of the West Side Main Canal, and is designed to conserve operational discharge from the Westside Main Canal. The following reservoirs being mentioned were constructed under the IID/MWD Water Consevation Agreement. The Galleano Reservoir started diversions in 1991, has a storage capacity of 425 acre-feet, and is located at the end of the East Highline Canal and at the heading of the 'Z' Lateral. The Bevins Reservoir started diversions in 1992, has a capacity of 253 acre-feet, and is located at the end of the Oasis Lateral. The Bevins Reservoir stores operational discharge from eight lateral canals in the Plum-Oasis Lateral Interceptor system that provides growers a demand delivery system where they can shut off or receive water whenever they want. The Young Reservoir

started diversions in 1996, has a storage capacity of 275 acre-feet, and is located at the end of the Mulberry-D Lateral Interceptor Canal. The Young Reservoir was constructed as part of the Mulberry-D Lateral Interceptor Project that catches operational discharge at the ends of 11 lateral canals. The Russell Reservoir started diversions in 1996, has a storage capacity of 200 acre-feet, and is located on the Vail Canal. The Russell Reservoir is part of the Mulberry-D Lateral Interceptor Project. The Willey Reservoir started diversions in 1998, has a storage capacity of 300 acre-feet, and is located south of the New River opposite the end of the Vail Canal. The Willey Reservoir was constructed as part of the Trifolium Lateral Interceptor Project. The Willey Reservoir stores operational discharge from the interceptor and discharges it into the Vail Canal at the Vail Lateral 3 Heading for downstream users. In total, Imperial Irrigation District reservoirs have a storage capacity of 3,372 acre-feet. All reservoirs are automated or remotely controlled from the Water Control Center.

Administrative water conservation programs include; the 13-Point Water Conservation Program started in 1976, the 21-Point Water Conservation Program started in 1980, and the 1987 15-Point Water Conservation Program. In July 1976, the Imperial Irrigation District supplemented its existing water conservation efforts with a stringent 13-Point Program. The overall goal of the 13-Point Program was to improve water use efficiency within the Imperial Irrigation District and reduce inflow to the Salton Sea by reducing tailwater, canal seepage and operational water. In 1979 the Imperial Irrigation District Board of Directors appointed a Water Conservation Advisory Board to make recommendations to the Imperial Irrigation District Board of Directors regarding the implementation of additional water conservation measures. In 1980, the recommendations suggested by the Water Conservation Advisory Board were reviewed and adopted by the Imperial Irrigation District Board of Directors as the 21-Point Program. The 21-Point Program supplements the original 13-Point Water Conservation Program. The 21-Point Water Conservation Program includes policies and procedures for ordering water, operating the delivery system and assessing extra charges for excessive water use. In 1987, the 15-Point Water Conservation Program replaced the 13- and 21-Point programs. The 15-Point Water Conservation Program contained aggressive policies to promote on-farm conservation, including a tailwater triple charge program.

In 1981 the Imperial Irrigation District hired personnel to develop it's Water Conservation Program. The Imperial Irrigation District established a two-year irrigation scheduling

demonstration program in 1981 (Imperial Irrigation District, 1981, p. 41). The Irrigation Scheduling Program continues today when requested by water users. Irrigation scheduling saves water by assisting growers in the reduction of on-farm tailwater and tilewater. In 1982, the Water Conservation Program cooperated with the Soil Conservation Service in field irrigation evaluations (Imperial Irrigation District, 1982, p. 42). An evaluation can determine the efficiency and uniformity of the irrigation on a given field. Practices can then be recommended to a cooperating grower. In 1984, a Modified Demand Irrigation Trial was started (Imperial Irrigation District, 1984, p. 42), in which water orders could be terminated up to four hours before or after the regular ending time. The Imperial Irrigation District has also implemented a series of agricultural educational programs to encourage water conservation. These programs range in complexity from public meetings to full-scale demonstration programs. An irrigation training program implemented in 1984 for growers and irrigators helped to reduce the amount of on-farm tailwater (Imperial Irrigation District, 1984, p. 42). In 1985, the Tailwater Return Demonstration Project was started (Imperial Irrigation District, 1985, p. 41), and in 1991 this program was reinstated. Between 1991 and 1995 twenty-five tailwater return systems were developed. In 1987 and 1988 Irrigation Field Trials were conducted. The intent of the trials were to determine the effect various soil moisture conditions had on sugar beet tonnage and sugar content. The results indicated that there were no significant differences in production between the three moisture regimes (Imperial Irrigation District, 1988, p. 42).

In 1981 the Imperial Irrigation District hired personnel to staff it's Hydrilla Control Program. The Imperial Irrigation District, in cooperation with the California Department of Food and Agriculture and the United States Department of Agriculture, began a three-year study into mechanical, chemical, and biological methods of controlling the 350 miles of hydrilla clogged canals. The biological research method is the only successful eradication program to control hydrilla. In 1985, the Imperial Irrigation District started stocking its main canals with the triploid grass carp a sterile fish. The Imperial Irrigation District constructed and started operation of a fish hatchery in 1988 to produce triploid grass carp for hydrilla control. After producing the fish for more than a decade, the Imperial Irrigation District is now California's only authorized breeder and producer of the triploid grass carp, licensed by the state Department of Fish and Game.

In 1985, the Imperial Irrigation District developed an extensive *1985 Water Conservation Plan* and a *Water Conservation Plan 1985 Supplement.* In 1986 the Imperial Irrigation District completed the *Water Conservation Plan June 1986 Update* which provided an update of water conservation activities and other matters relating to the *1985 Water Conservation Plan.* The report *Imperial Irrigation District Water Conservation Progress Through December 1987* summarized potential water conservation measures, outlined programs which have been implemented, and described proposed projects.

The Imperial Irrigation District has historically provided growers with flexibility in delivery frequency and rate by generally providing water within a day of its being ordered and by allowing growers to order almost any flow rate. The Imperial Irrigation District's only requirement was that water be taken in 24-hours increments. In 1986, an experimental 12-Hour Delivery Program was conducted for seed germination only. This program encountered problems related to computer incompatibility, vehicle and staff-hour overtime, and canal fluctuations (Imperial Irrigation District, 1986, p. 41). In 1989 this program was reinstituted (Imperial Irrigation District, 1989, p. 33). The revised 12-Hour Delivery Program allows growers to take water deliveries in 12-hour increments during the day or night, has been successful in reducing excess delivery water, and provides "finishing" heads to assist growers in reducing their water orders.

The Imperial Irrigation District has been involved in various cooperative studies and programs, researching innovative water conservation methods. The Bureau of Reclamation and Imperial Irrigation District East Highline Seepage Study started in 1985. The purpose of the study was to evaluate the feasibility of implementing the conservation measures identified in the *Water Conservation Opportunities Special Report, Imperial Irrigation District, California* completed in 1984 by the Bureau of Reclamation. The study included seepage analysis, regulating reservoir sizing analysis, and remote sensing analysis (U.S. Department of the Interior Bureau of Reclamation, 1989, p. 2-3). The Imperial Irrigation District and the U.S. Water Conservation Laboratory of Phoenix, Arizona conducted a joint project to study the causes and effects of water level fluctuations in an open channel irrigation system. Lateral water surface fluctuations cause variability of water deliveries. Two laterals were monitored for one year during 1986 and 1987. In 1987, the Imperial Irrigation District produced a technical report for the Lateral Fluctuation Study. The goal of the study was to identify factors which cause fluctuations in flow and result in variable deliveries to water

users. Variable water deliveries make it difficult for growers to effectively manage their irrigations and conserve water.

Experimental programs included the Non-Crop Irrigation Reduction Plan and Modified Irrigation. The Non-Crop Irrigation Reduction Plan reduced the amount of leaching allowed before planting the crop. This was a one year program that began in May 1991 (Imperial Irrigation District, 1990, p. 34). The Modified Irrigation Program consisted of twelve 35-acre alfalfa fields in various parts of the Valley that were not watered for 75 days during the summer of 1991. The Imperial Irrigation District evaluated the impact on the crop versus the amount of water saved (Imperial Irrigation District, 1990, p. 35).

In December 1988, the *Agreement for the Implementation of A Water Conservation Program and Use of Conserved Water* was signed by the Imperial Irrigation District and the Metropolitan Water District of Southern California. The agreement was finalized in December 1989. The Imperial Irrigation District began construction activities to implement this water conservation program in January 1990. Metropolitan Water District of Southern California financed the construction and on-going maintenance and verification activities of water conservation projects within the Imperial Irrigation District in exchange for the temporary (35 year) use of the conserved water. The program included the construction of 15 new projects within Imperial Irrigation District's service area and two pre-program augmentation projects. From 1990 through 2000, 782,746 acre-feet of conserved water (Imperial Irrigation District, 2000, p.1) have been transferred to Metropolitan Water District of Southern California. The annual yield of this program is between 100,000 to 110,000 acre-feet of conserved water. Projects included in the this program include Carter Reservoir, South Alamo Canal Lining Phase I, Plum-Oasis Lateral Interceptor, Trifolium Lateral Interceptor, Mulberry-D Lateral Interceptor, Galleano Reservoir, South Alamo Canal Lining Phase II, Lateral Canal Lining, Vail Supply Canal Lining, Rositas Supply Canal Lining, Westside Main Canal Lining, 12-Hour Delivery, Singh Reservoir Improvements, Non-Leak Gates, Irrigation Water Management, System Automation, Additional Irrigation Water Management, Program Coordination and Verification, Alternative Projects, Pinto Wash Detention Reservoir, Westside Main Canal Seepage Recovery, and East Highline Canal Seepage Recovery.

In 1997, the Imperial Irrigation District and the San Diego County Water Authority (SDCWA) entered into a long-term conservation and water transfer agreement, which, if implemented, will benefit all Californians. The Imperial Irrigation District/San Diego County Water Authority Water Conservation and Transfer Agreement provides for the transfer to SDCWA of up to 200,000 acre-feet per year of water conserved within the Imperial Irrigation District service area, plus an additional optional amount of up to 100,000 acre-feet per year.

Under this agreement, the Imperial Irrigation District and its agricultural water users will conserve water and transfer the quantity conserved to SDCWA for at least 45 years. Either agency may extend the contract for another 30 years beyond the initial term. Deliveries in the first year of program implementation will total 20,000 acre-feet and increase in 20,000 acre-feet increments annually for a minimum 130,000 acre-feet transfer or up to a maximum 200,000 acre-feet transfer over a ten year period. SDCWA would pay an amount for the water that equals the cost of conserving the water plus an incentive to encourage participation by farmers, along with an index to adjust the cost of the water in future years based on market prices. Additionally, the water must result from 'extraordinary conservation,' not land fallowing (which is contractually prohibited as a method of conservation).

Implementation of the Imperial Irrigation District/San Diego County Water Authority water conservation and transfer is contingent upon several factors, such as the satisfactory completion of 'wheeling' (transportation and/or exchange) arrangements between San Diego County Water Authority and Metropolitan Water District of Southern California, the completion and certification of all required environmental documents, issuance of all necessary permits and approvals by state and federal authorities, environmental mitigation costs that do not exceed predefined caps outlined in the transfer agreement, and adequate farmer participation levels to ensure that at least 130,000 acre-feet of the conserved water is generated by on-farm conservation efforts.

The Imperial Irrigation District has a long history of water conservation. Some of Imperial Irrigation District's earlier conservation projects, on-farm tile drainage and seepage recovery, were started in the 1940s. In the 1950s seepage recovery, canal and lateral concrete lining, and automation projects were completed for the water distribution system. In the 1960s drain pipelines and additional seepage-recovery projects were completed. The 1970s saw

the beginning of regulating reservoir projects and administrative water conservation programs at the Imperial Irrigation District. During the 1980's new water conservation projects and programs began every year and at the end of the decade construction for the Imperial Irrigation District/Metropolitan Water District of Southern California Water Conservation and Transfer projects and programs had began. The 1990s water conservation projects and programs continue at the on-farm, regional, state, and national levels. Water conservation projects and programs will continue into the future. Table C lists Imperial Irrigation District's water conservation projects and programs.

Table C Imperial Irrigation District Water Conservation Programs and Projects		
Water Conservation Project	**Year**	**Activity Summary**
On-Farm Tile Drainage	1940 – present	IID in cooperation with USDA Soil Conservation Service designed and installed tile drainage systems to remove water and salts from the soil.
Seepage Recovery Drain No. 2	1947 – present	All American Canal water seepage returned to canal. Each year approximately 11,400 acre-feet are conserved (annual average 1964 thru 1994).
Seepage Recovery Drain No. 1	1948 – present	All American Canal water seepage returned to canal. Each year approximately 1,900 acre-feet are conserved (annual average 1988 through 1994).
Seepage Recovery Drain Pumps 4, 5, 6, 11, 12, & 34	1951 – present	All American Canal water seepage returned to canal. Each year approximately 10,000 acre-feet are conserved (total annual average 1988 through 1994).
Concrete Lined Canals & Laterals	1954 – present	Cumulatively 3,679 miles of canals, laterals, and head ditches have been lined (privately owned, IID owned, and MWD funded through 1994).
Automation of Water Distribution System - installation and operation	1958 – present	A telemetry system, installed in 1958, automated the structures on the upper reaches of the main canals and used telephone lines to access remote sites. In the 1990's a Supervisory Control and Data Acquisition System (SCADA) was installed that use computers and a radio/microwave communication network. A new Water Control Center was completed 1993.
Drain Pipelines	1962 – present	Cumulatively installed 117 miles of drain pipelines, 1962 through 1994.
East Highline Seepage Recovery	1967 – present	East Highline Canal water seepage returned to canal with 12 pump systems. Each year approximately 14,350 acre-feet are conserved (annual average 1967 through 1994).
East Highline Seepage Recovery	1967 – present	East Highline Canal water seepage returned to canal with 12 pump systems. Each year approximately 14,350 acre-feet are conserved (annual average 1967 through 1994).
Regulating Reservoirs – construction and operation	1976 – present	Reservoirs built and IID funded include Singh Reservoir 1976, Sheldon 1977, Fudge 1981, Sperber 1983, Carter Reservoir 1988. Reservoirs built and MWD funded include, Galleano Reservoir 1991, Bevins Reservoir 1992, Young Reservoir 1996, Russell Reservoir 1996, and the Willey Reservoir 1998 (total storage capacity 3,372 acre-feet).
13-Point Water Conservation Program	1976 – 1987	Program to reduce tailwater, canal seepage, and operational water.
Water Conservation Advisory Board	1979 – present	Make additional water conservation recommendations to IID Board of Directors.
21-Point Water Conservation Program	1980 – 1987	Policies and procedures for ordering water, operating the delivery system, and assessing extra charges for excessive water use.
Water Conservation Program	1981 – present	IID hired personnel to staff its Water Conservation Program.
Irrigation Scheduling Program	1981 – present	Assist growers to reduce on-farm tailwater and tilewater.
Aquatic Weed Control	1981 – present	IID supported research to develop/built fish hatchery to produce the sterile Triploid Grass carp fish that feeds on hydrilla an aquatic weed that clogs canals and drains.
Field Irrigation Evaluations	1982	Improve Irrigation Management on-farm.

Table C Continued Imperial Irrigation District Water Conservation Programs and Projects		
Water Conservation Project	**Year**	**Activity Summary**
Modified Demand Irrigation Trial	1984	Water Orders could be terminated up to four hours before or after the regular ending time.
Irrigation Training Program	1984	For growers and irrigators to reduce the amount of on-farm tailwater.
IID Water Conservation Plan	1985 – 1987	Plan with yearly updates.
East Highline Canal Seepage and System Improvement Study	1985 – 1989	Cooperative water conservation study to identify water conservation opportunities. IID and U.S. Department of the Interior Bureau of Reclamation study.
Tailwater Recovery Demonstration Program/Tailwater Return Systems	1985 – 1990; 1991 – present	Five year demonstration with five tailwater return systems. Developed 25 Tailwater Return Systems from 1991 through 1995 with MWD funding.
12-Hour Delivery Program	1986; 1989 – present	Program allows water deliveries in 12-hour increments.
Lateral Fluctuation Study	1986, 1987	Cooperative water conservation study to identify water conservation opportunities. IID & US Water Conservation Laboratory of Phoenix, Arizona study of causes/effects of water level fluctuations for open channel irrigation system.
Irrigation Field Trials	1987, 1988	Determine effect of various soil moisture conditions on sugar beet tonnage and sugar content.
15-Point Water Conservation Program	1987 – present	This program replaced the 13-Point and 21-Point Water Conservation Programs.
IID/MWD Water Conservation and Transfer Agreement	1989 – present	Project construction took place from 1990 to 1998 and then starts 35-year water transfer period. Many water conservation studies and reports were completed during the program.
Non-Crop Irrigation Demand Reduction Program	1991 – 1992	A limit on the length of time water may be applied to flood lands not seeded for crop.
Crop Specific Modified Irrigation Program Pilot Program	1991	Evaluate removal or irrigation water from alfalfa during the period August 1 through October 15, 1991.
IID/SDCWA Water Conservation and Transfer Agreement	1995 – present	In 1995, IID and San Diego County Water Authority (SDCWA) signed an MOU to pursue a conservation and transfer agreement. In 1998, IID and SDCWA signed a water conservation and transfer agreement.
Quantification Settlement of Colorado River Water Supply Issues	1999	IID, CVWD, MWD, SDCWA, State of California, and the U.S. Bureau of Reclamation issued key terms for a quantification settlement of Colorado River water supply issues.

Note: This list of conservation programs and projects is not necessarily all-inclusive.

WATER INFORMATION 2000

V. WATER DISTRIBUTION SYSTEM

Annual Summary
2000
Water Storages and Discharges
Colorado River

	2000 (A.F.)	1999 (A.F.)
Grand Canyon:		
Discharge for Year	9,007,876	12,085,500
Hoover Dam:		
Storage - December 31	22,358,000	24,997,000
Change in Storage	(2,639,000)	216,000
Discharge for Year	10,692,048	11,032,900
Davis Dam:		
Storage - December 31	1,601,000	1,587,000
Change in Storage	14,000	52,800
Discharge for Year	10,716,155	11,070,300
Parker Dam:		
Storage - December 31	550,300	545,200
Change in Storage	5,100	(62,100)
Discharge for Year	7,886,068	8,353,300
Imperial Dam:		
Diversions to:		
All-American Canal	5,268,949	5,860,031
Gila Main	816,277	765,160
Passing Imperial Dam	413,251	538,260
Discharge for Year	6,498,477	7,163,451
Yuma - Below Yuma Main Spill:		
Discharge for Year	774,546	922,810
Morelos Dam:		
Diversion to Alamo Canal:		
Discharge for Year	2,175,776	2,341,043

Annual Summary
2000
Daily Discharges
Colorado River

	2000 (A. F.)	1999 (A. F.)
Hoover Dam:		
Daily Discharge - Maximum	27,100 (07/07)	28,100 (10/30)
- Minimum	3,710 (09/23)	4520 (09/04)
- Mean	14,728	15,240
Davis Dam:		
Daily Discharge - Maximum	26,100 (04/16)	22,000 (05/14)
- Minimum	6,700 (10/29)	6,280 (01/20)
- Mean	14,762	15,291
Parker Dam:		
Daily Discharge - Maximum	16,200 (05/06)	16,000 (09/26)
- Minimum	2,940 (12/22)	2,570 (12/23)
- Mean	10,863	11,538
Imperial Dam:		
Daily Discharge - Mean	7,258	8,094
Diversions to AAC (Sta. 60):		
Daily Discharge - Maximum	10,700 (04/14)	12,200 (01/13)
- Minimum	3,350 (01/01)	3,000 (12/25)
- Mean	7,258	8,094
Drop No.1:		
Daily Discharge - Maximum	6,386 (05/05)	6,285 (06/17)
- Minimum	573 (12/25)	763 (12/25)
- Mean	4,203	4,215
Yuma Diversion:		
Daily Discharge - Maximum	2,146 (08/03)	2,187 (09/28)
- Minimum	1002 (08/20)	791 (6/09)
- Mean	1,935	1,914

Annual Summary
2000
Water Balance
All-American Canal
(Imperial Dam to Drop 1)

			2000 (A. F.)	1999 (A. F.)
All-American Canal Diversion				
@ Imperial Dam (Sta. 60):				
IID		(p)	3,155,890	3,119,326
CVWD		(p)	348,059	338,179
Yuma		(p)	1,404,879	1,385,572
Pilot Knob (power)		(p)	360,121	1,016,954
	Total	(m)	5,268,949	5,860,031
Diversion above Siphon Drop - Bard (-)			83,479	81,010
Diversion at Siphon Drop & Walapai (-)			537,187	565,787
Pilot Knob P.P. Diversions				
	(see note 2)	(m) (-)	1,125,482	1,742,300
Loses Imperial Dam to Pilot Knob				
	(see note 3)	(c) (-)	72,165	35,154
Discharge Below Pilot Knob		(m)	3,450,636	3,084,856
Discharge Below P.K. (1117) Check to:				
CVWD		(p)	342,190	334,013
IID		(p)	3,108,446	3,084,172
	Total	(m)	3,450,636	3,418,185
Losses P.K. to Drop No. 1 (c):				
CVWD Portion		(p) (-)	6,724	3,846
IID Portion		(p) (-)	56,990	32,769
	Total	(c) (-)	63,714	36,615
Diversions at Drop No. 1:				
CVWD		(p)	335,466	330,167
IID		(p)	3,051,456	3,051,403
	Total	(e)	3,386,922	3,381,570

Annual Summary
2000
Water Balance
All-American Canal
(Imperial Dam to Drop 1)
(continued)

Note 1: In 1991, an Accoustical Velocity Meter was installed to measure below Drop1.

Note 2: Pilot Knob Power Plant Diversions: (Return to River at Pilot Knob)		**2000 (A.F.)**	**1999 (A.F.)**
YCWUA Transfer	(p)	766,786	724,952
IID	(p)	358,642	1,016,921
Diversions to Pilot Knob Spillway	(p)	54	427
Total	(m) (-)	1,125,482	1,742,300

Note 3: Losses Imperial Dams (Sta. 60) to Pilot Knob (1117)			
IID	(p)	47,444	35,154
CVWD	(p)	5,869	4,166
Yuma	(p)	17,409	13,575
Pilot Knob (power)	(p)	1,443	-146
Total	(c) (-)	72,165	52,749

(p) estimated proportion value:	is a percentage of a measured or calculated value
(m) measured value:	is determined by using a standard measuring device, ie, weir, gate, measurements are made on a continuous basis.
(c) calculated value:	is determined by subtracting measured and/or estimated values.
(e) estimated value:	is determined by taking flow measurement readings several times a day.

Annual Summary
2000
Water Balance
All-American Canal
(Drop 1 to West Side Main Canal)

		2000 (A.F.)	1999 (A.F.)
Drop 1 to IID			
* IID Discharge Below Drop 1	(m)	3,051,456	3,051,403
Diversions Drop 1 to EHL Check	(m)	1,328,111	1,323,771
Losses Drop No, 1 to EHL Check	(c)	30,586	19,478
Discharge Below EHL Check	(m)	1,692,759	1,708,154
Diversion EHL Check to CM Check	(m)	957,841	957,205
Losses EHL to CM Check	(c)	19,084	11,961
Discharge Below CM Check	(m)	715,834	738,988
Losses CM to WSM Check	(c)	7,783	5,069
Diversion CM Check to WSM Check	(m)	708,051	733,919

SUMMARY

Total Diversions from All-American Canal Below Drop 1	2,994,003	3,014,895
Total Losses from All-American Canal Below Drop 1	57,453	36,508

*An Acoustical Velocity Meter (AVM) was installed in 1991 to measure discharge below Drop 1 and the discharge below East Highline Check.

Annual Summary
2000
Water Balance
All-American Canal
Losses and Diversions
(Imperial Dam to Westside Main)

Summary of Diversions		2000 (A.F.)	1999 (A.F.)
Pilot Knob Spill		54	427
Pilot Knob Power Plant		358,642	1,016,921
YCWUA		766,786	724,952
Siphon Drop & Walapai		537,187	565,787
Bard		83,479	81,010
CVWD		335,466	330,167
East Highline		1,328,111	1,323,771
Central Main		957,841	957,205
Westside Main		708,051	733,919
	Total	**5,075,617**	**5,734,159**

Summary of Losses		2000 (A.F.)	1999 (A.F.)
Imperial Dam to Pilot Knob (-)		72,165	52,749
Pilot Knob to Drop No. 1 (-)		63,714	36,615
Drop No. 1 to EHL Check (-)		30,586	19,478
EHL Check to CM Check (-)		19,084	11,961
CM Check to WSM Check (-)		7,783	5,069
	Total	**193,332**	**125,872**

Annual Summary
2000
Total System Water Balance
Main/Lateral Canals

		2000 (A.F.)	1999 (A.F.)
Discharge Below Pilot Knob (IID)	(p)	3,108,446	3,084,172
Total Main Canal Losses (incl. AAC, WSM, CM, EHL)	(c)	511,939	501,709
Total Diversions from Main Canals	(c)	2,596,507	2,582,463
Main Canal Operational Spill (see Note 1)	(m)	1,015	278
Deliveries from Main Canals	(c)	2,595,492	2,582,185
Operational Spill Recovered (see Note 2)	(m)	114,555	114,077
Net Received by Divisions, including recovered spill	(m)	2,710,047	2,696,262
Lateral Canal Losses	(c)	15,599	24,703
Delivered to User Headgate	(e)	2,694,448	2,671,559
Total Charged to User (est. ordered)		2,734,336	2,716,541

Note 1. Main Canal Operational Spill

All-American Canal Alamo Spill		0	0
All-American Canal New River Spill		0	22
Dahlia Spillway		2	0
No. 4 Spillway		0	0
Dixie Spillway		0	0
Vail Spillway to New River		51	64
Vail Supply to Alamo - above North End Dam		29	124
Rositas Spillway at Rose Heading		31	0
East Highline at Z Spillway		10	0
WSM Storm Drain Spillway		892	68
	TOTAL	1,015	278

Note 2: Returned to System:

From Division - Southend	38,613	35,114
From Division - Northend	75,942	78,963
From Division - Total	114,555	114,077

(e) estimated value **(c)** calculated value **(m)** measured value **(p)** estimated proportioned value

Annual Summary
2000
Water Diversions to Divisions

	Net Received at Laterals (estimated)		Lateral Canal Losses (calculated)		Delivered to User Headgate (estimated)		Charged to Users (est. ordered)	
	2000 (A.F.)	1999 (A.F.)	2000 (A.F.)	1999 (A.F.)	2000 (A.F.)	1999 (A.F.)	2000 (A.F.)	1999 (A.F.)
Southend	1,403,130	1,393,011	3,180	11,757	1,399,950	1,381,254	1,427,394	1,414,303
Northend	1,306,917	1,303,251	12,419	12,946	1,294,498	1,290,305	1,306,942	1,302,238
TOTAL	**2,710,047**	**2,696,262**	**15,599**	**24,703**	**2,694,448**	**2,671,559**	**2,734,336**	**2,716,541**

NET RECEIVED is based on a daily estimated flow measured at the lateral headings by hydrographers. For affected divisions this value includes operational spill recovery.

LATERAL CANAL LOSSES includes evaporation, seepage, carriage water and operational discharge.

DELIVERED TO USERS is based on a daily estimated flow at water users headgates measured several times by the zanjeros. Information is gathered by Divisions and given to Water Control.

CHARGED TO USERS is water ordered by farmers/irrigators with possible adjustments reflecting quantity actually delivered.

Note: Typically the quantity of water charged to user is greater than delivered to user because irrigators usually will cut back their original orders during the end of the irrigation period resulting in less actual delivered water. However, the user is still charged for the amount of water that was originally ordered.

Historical Summary

Water Deliveries to Cities

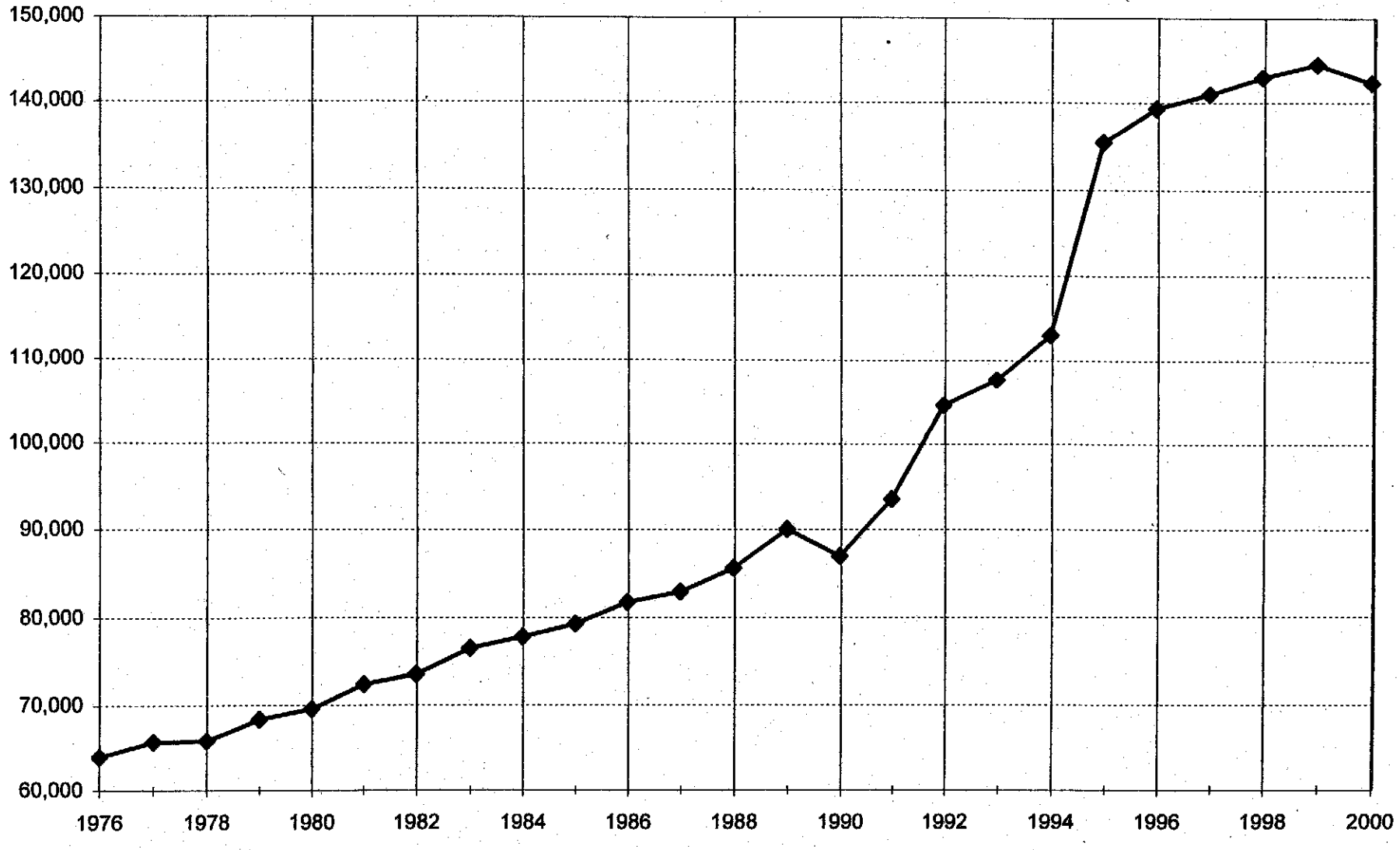
Year	Acre-feet Delivered	Population
1976	24,543	63,974
1977	23,886	65,752
1978	26,229	65,844
1979	26,003	68,345
1980	27,170	69,551
1981	26,977	72,347
1982	26,916	73,504
1983	26,812	76,490
1984	27,870	77,771
1985	25,874	79,266
1986	27,058	81,754
1987	27,731	82,934
1988	27,071	85,641
1989	27,827	90,011
1990	26,224	86,940
1991	26,961	93,507
1992	29,135	104,587
1993	30,339	107,652
1994	31,439	113,030
1995	34,052	135,500 *
1996	34,267	139,300 *
1997	31,734	141,000 *
1998	30,858	143,000 *
1999	31,906	144,500 *
2000	31,683	142,361 **
Mean	27,170	85,641

Water Delivered to Cities includes cities and unincorporated communities in Calexico, Holtville, El Centro, Imperial, Brawley, Westmorland, Calipatria, Niland, Seeley and Heber.

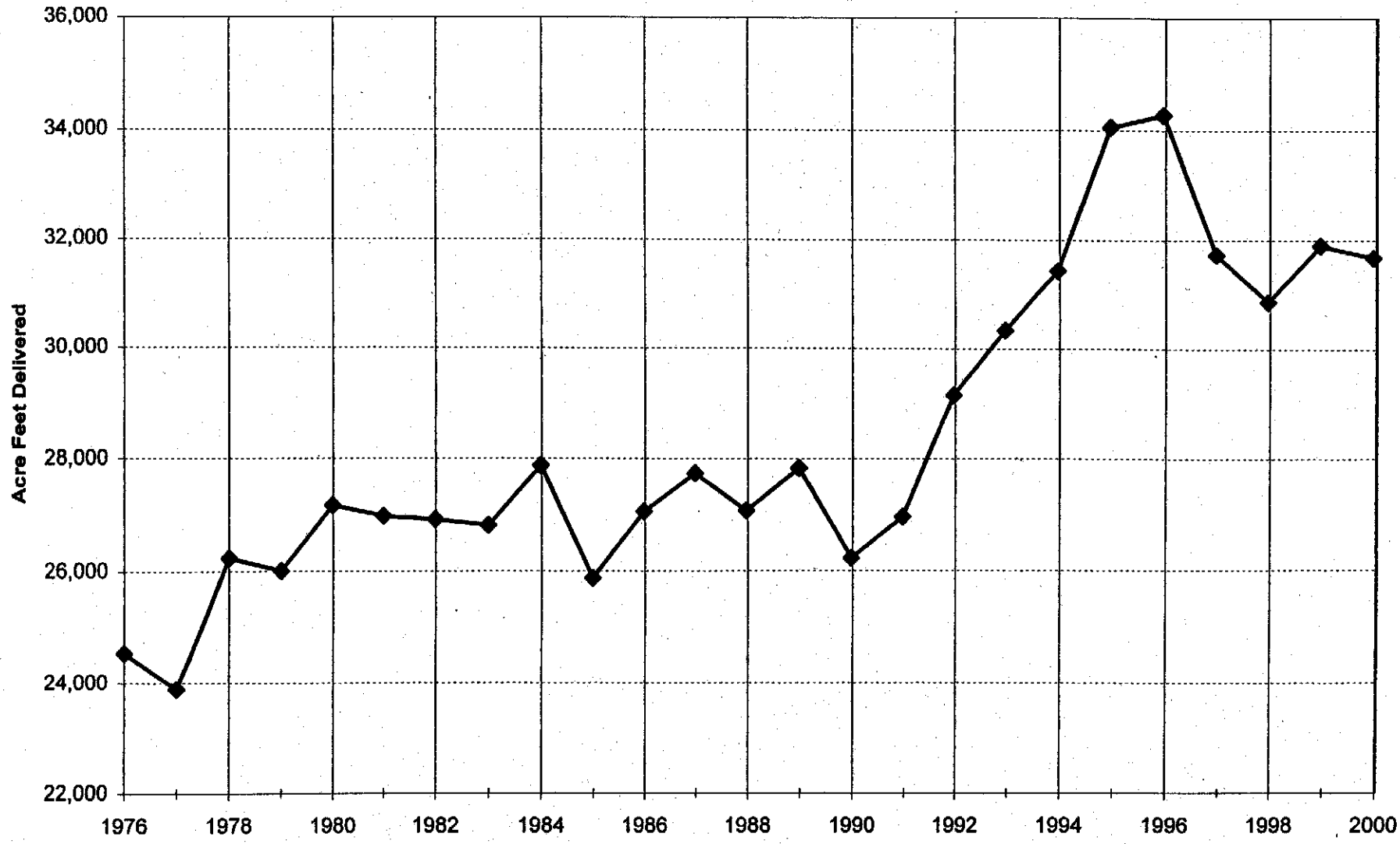
* Estimate - Bureau of Census (census.gov)

** 2000 Census - Bureau of Census (census.gov)

HISTORICAL POPULATION
1976 - 2000



HISTORICAL URBAN WATER USE
1976 - 2000



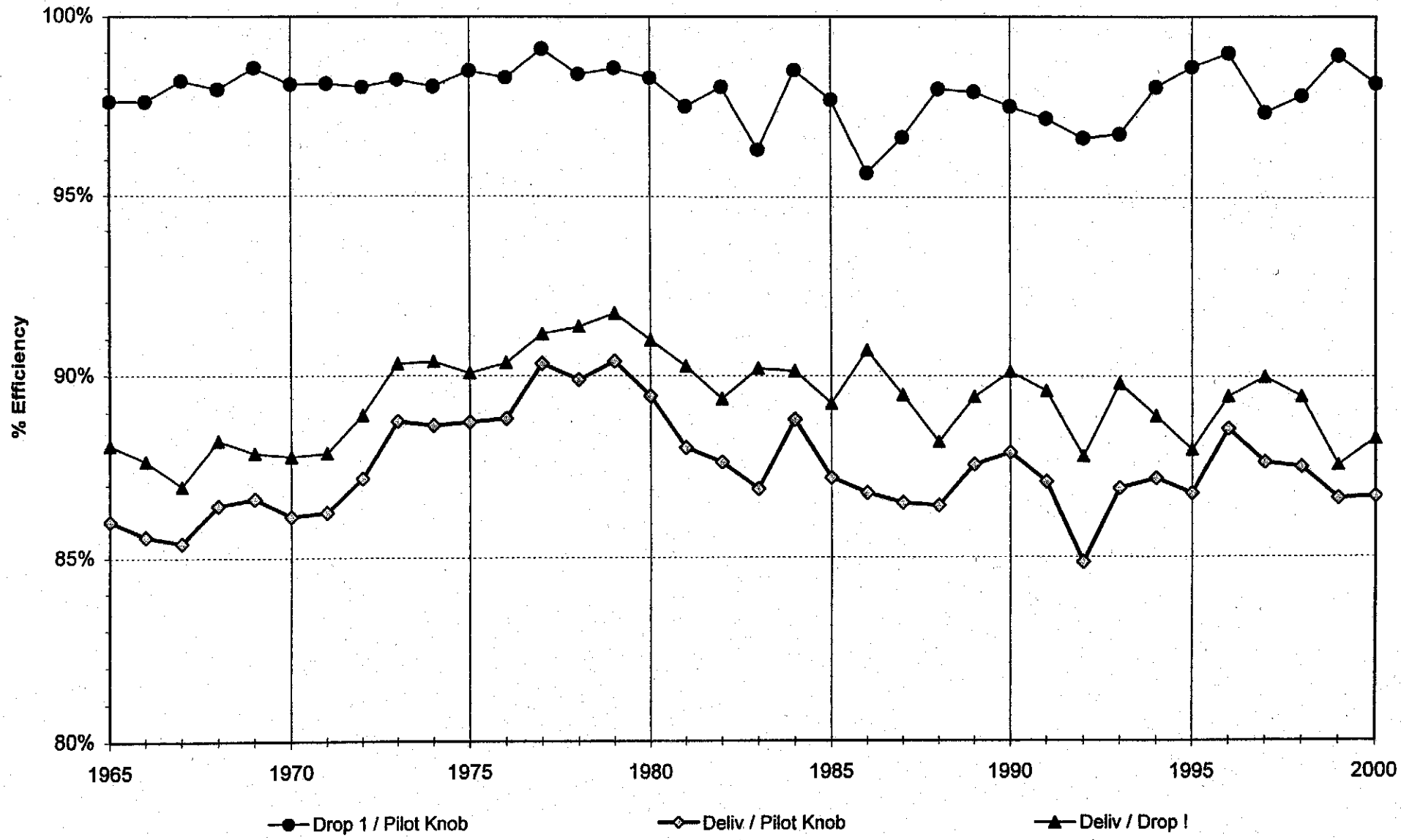
Historical Summary

Delivery Efficiency

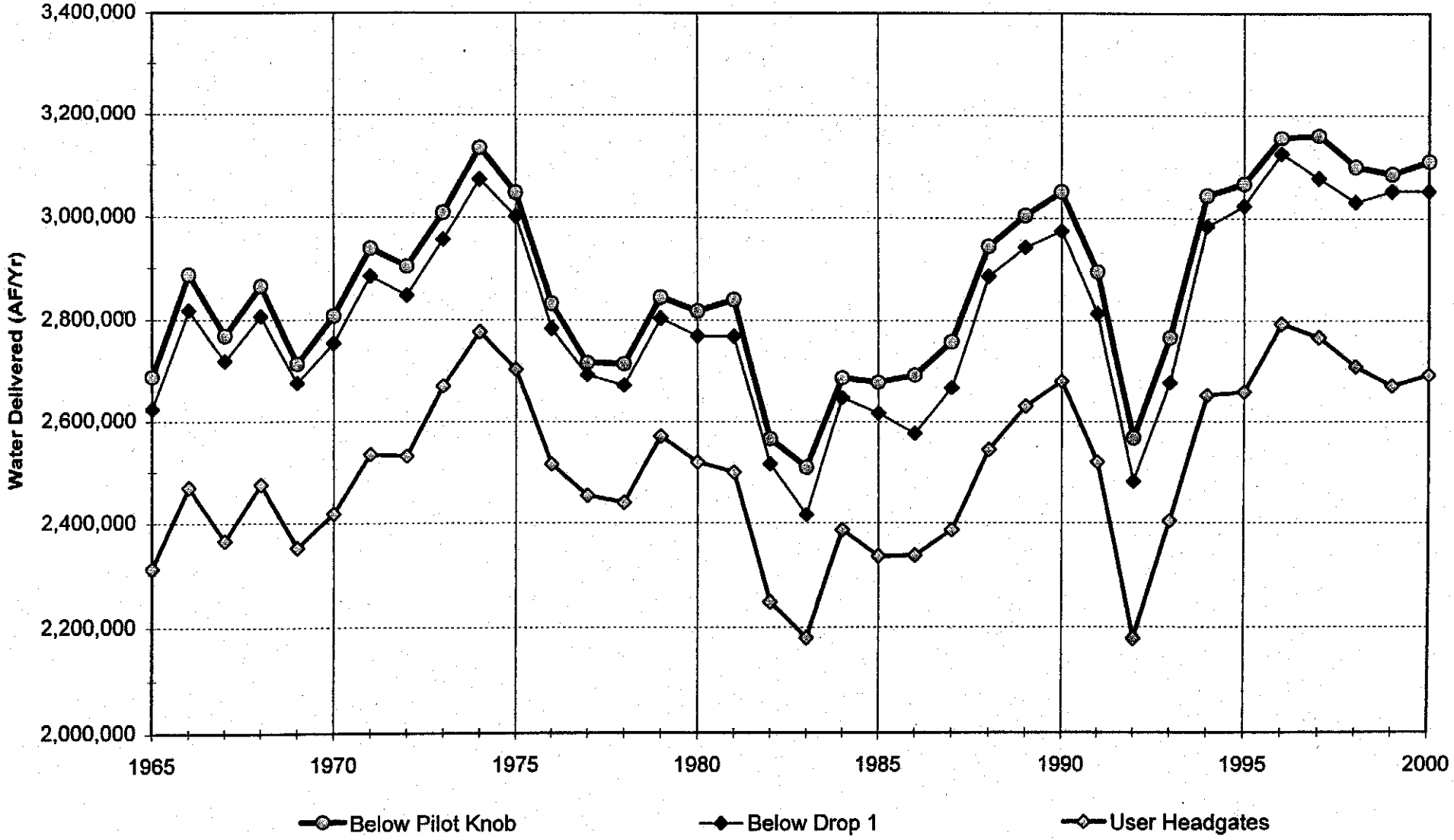
Comparing Discharges at Pilot Knob, Drop 1 and Users' Headgates

Year	Discharge IID Below Pilot Knob (ac-ft)	AAC IID Below Drop 1 (ac-ft)	Effic. Drop 1/ PK %	Delivered to User Headgate (ac-ft)	Effic. Deliv / PK %	Effic. Deliv / Drop 1 %
1963	3,062,485	2,991,429	97.68%	2,284,666	74.60%	76.37%
1964	2,807,681	2,770,474	98.67%	2,398,693	85.43%	86.58%
1965	2,688,158	2,624,363	97.63%	2,311,966	86.01%	88.10%
1966	2,886,364	2,817,912	97.63%	2,470,268	85.58%	87.66%
1967	2,769,592	2,719,861	98.20%	2,365,379	85.41%	86.97%
1968	2,864,151	2,806,124	97.97%	2,475,825	86.44%	88.23%
1969	2,714,487	2,675,833	98.58%	2,351,578	86.63%	87.88%
1970	2,807,817	2,754,898	98.12%	2,418,439	86.13%	87.79%
1971	2,938,783	2,883,960	98.13%	2,534,599	86.25%	87.89%
1972	2,903,491	2,846,613	98.04%	2,531,343	87.18%	88.92%
1973	3,008,661	2,956,013	98.25%	2,670,313	88.75%	90.33%
1974	3,133,038	3,072,327	98.06%	2,777,221	88.64%	90.39%
1975	3,046,890	3,001,207	98.50%	2,703,706	88.74%	90.09%
1976	2,831,443	2,783,630	98.31%	2,515,265	88.83%	90.36%
1977	2,717,201	2,693,030	99.11%	2,454,750	90.34%	91.15%
1978	2,714,988	2,671,798	98.41%	2,440,701	89.90%	91.35%
1979	2,843,730	2,803,166	98.57%	2,570,856	90.40%	91.71%
1980	2,817,121	2,769,495	98.31%	2,519,695	89.44%	90.98%
1981	2,839,495	2,769,112	97.52%	2,499,761	88.04%	90.27%
1982	2,565,475	2,515,637	98.06%	2,248,235	87.63%	89.37%
1983	2,509,289	2,416,885	96.32%	2,180,243	86.89%	90.21%
1984	2,687,114	2,647,285	98.52%	2,386,328	88.81%	90.14%
1985	2,678,381	2,616,876	97.70%	2,335,297	87.19%	89.24%
1986	2,692,789	2,576,012	95.66%	2,336,583	86.77%	90.71%
1987	2,758,681	2,666,891	96.67%	2,386,120	86.49%	89.47%
1988	2,943,868	2,885,053	98.00%	2,544,203	86.42%	88.19%
1989	3,004,888	2,942,429	97.92%	2,631,047	87.56%	89.42%
1990	3,050,008	2,974,647	97.53%	2,680,912	87.90%	90.13%
1991	2,894,111	2,813,019	97.20%	2,520,160	87.08%	89.59%
1992	2,567,621	2,481,845	96.66%	2,178,770	84.86%	87.79%
1993	2,766,973	2,677,597	96.77%	2,404,454	86.90%	89.80%
1994	3,043,050	2,984,067	98.06%	2,652,786	87.18%	88.90%
1995	3,065,503	3,023,427	98.63%	2,659,703	86.76%	87.97%
1996	3,154,973	3,123,596	99.01%	2,793,878	88.55%	89.44%
1997	3,158,989	3,076,026	97.37%	2,768,032	87.62%	89.99%
1998	3,097,829	3,030,695	97.83%	2,710,721	87.50%	89.44%
1999	3,084,172	3,051,403	98.94%	2,671,559	86.62%	87.55%
2000	3,108,446	3,051,456	98.17%	2,694,448	86.68%	88.30%
10 Yr Avg	**2,994,167**	**2,931,313**	**97.90%**	**2,605,451**	**87.02%**	**88.88%**

DELIVERY EFFICIENCY
Conveyance System



ANNUAL WATER DELIVERY
To Pilot Knob, Drop 1, and User Headgates



Historical Summary

Salinity of Colorado River

Below Drop 1 on All-American Canal

Year	IID Diversions (acre-feet) (a)	Salt Content (tons) (b)	Weighted (tons/AF)	Average p.p.m. (c)
1958	2,730,876	2,723,153	1.00	735
1959	2,840,173	2,852,019	1.00	735
1960	2,983,860	3,162,485	1.06	779
1961	2,957,200	3,330,087	1.13	831
1962	2,951,266	3,399,464	1.15	845
1963	2,991,429	3,378,583	1.13	831
1964	2,770,474	3,284,284	1.19	875
1965	2,624,363	3,406,457	1.30	956
1966	2,817,912	3,650,447	1.30	956
1967	2,719,861	3,306,261	1.22	897
1968	2,806,124	3,408,548	1.21	889
1969	2,675,833	3,396,105	1.27	933
1970	2,754,898	3,488,023	1.27	933
1971	2,883,969	3,666,277	1.27	933
1972	2,846,613	3,541,248	1.24	911
1973	2,956,013	3,492,199	1.18	867
1974	3,072,327	3,669,832	1.19	875
1975	3,001,207	3,581,043	1.19	875
1976	2,783,630	3,263,454	1.17	860
1977	2,693,030	3,039,155	1.13	831
1978	2,671,798	2,897,906	1.08	794
1979	2,803,166	3,216,228	1.15	845
1980	2,769,495	3,058,785	1.10	809
1981	2,769,112	3,192,402	1.15	845
1982	2,515,637	2,918,781	1.16	853
1983	2,416,885	2,538,349	1.05	772
1984	2,647,285	2,654,712	1.00	735
1985	2,616,876	2,468,408	0.94	691
1986	2,576,012	1,821,898	0.71	522
1987	2,666,891	2,144,276	0.80	588
1988	2,885,053	2,591,698	0.90	662
1989	2,942,429	2,743,768	0.93	684
1990	2,974,647	2,943,702	0.99	728
1991	2,813,019	2,637,852	0.94	691
1992	2,481,845	2,437,855	0.98	720
1993	2,677,597	2,694,852	1.03	757
1994	2,984,067	3,203,572	1.07	786
1995	3,023,427	3,231,211	1.07	786
1996	3,123,596	3,429,445	1.10	809
1997	3,076,026	3,033,895	0.99	728
1998	3,030,695	2,719,680	0.90	662
1999	3,051,403	2,707,395	0.94	691
2000	3,051,456	2,679,122	0.88	647

(a) IID Diversion below Drop 1.

(b) Prior to 1973, weekly samples were taken at the All-American Canal Station 2963 at the East Highline Check. Beginning in 1973, weekly samples were taken at the All-American Canal below Drop 1.

(c) p.p.m. = 735 x T.A.F. (tons of salt per acre-foot of water).

HISTORICAL SUMMARY

SALT BALANCE IN THE IMPERIAL VALLEY

(Influent to Imperial Valley/Effluent to Salton Sea)
(Excludes Mexico's Contribution)

	Influent (a)				Effluent (b)					
Year	Discharge Below Drop 1 (A.F.)	Salt Imported (tons)	T.A.F.	p.p.m.	Discharge to Sea (A.F.)	Salt Exported (tons)	T.A.F.	p.p.m.	Difference PCP-Imp) (tons)	Percent Change %
1958	2,730,876	2,723,153	1.00	735	974,045	3,341,376	3.43	2,521	618,223	22.70%
1959	2,840,173	2,852,019	1.00	735	1,200,963	3,401,652	2.83	2,080	549,633	19.27%
1960	2,983,860	3,162,485	1.06	779	1,059,804	3,558,534	3.36	2,470	396,049	12.52%
1961	2,957,200	3,330,087	1.13	831	1,050,700	3,572,808	3.40	2,499	242,721	7.29%
1962	2,951,266	3,399,464	1.15	845	1,088,965	3,806,946	3.50	2,573	407,482	11.99%
1963	2,991,429	3,378,583	1.13	831	1,153,827	4,050,087	3.51	2,580	671,504	19.88%
1964	2,770,474	3,284,284	1.19	875	905,153	3,635,121	4.02	2,955	350,837	10.68%
1965	2,624,363	3,406,457	1.30	956	882,962	3,819,255	4.33	3,183	412,798	12.12%
1966	2,817,912	3,650,447	1.30	956	1,004,685	4,148,874	4.13	3,036	498,427	13.65%
1967	2,719,861	3,306,261	1.22	897	1,027,970	4,139,477	4.03	2,962	833,216	25.20%
1968	2,806,124	3,408,548	1.21	889	1,001,027	4,012,009	4.01	2,947	603,461	17.70%
1969	2,675,833	3,396,105	1.27	933	962,639	3,754,477	3.90	2,967	358,372	10.55%
1970	2,754,898	3,488,023	1.27	933	1,020,503	3,780,732	3.70	2,720	292,709	8.39%
1971	2,883,969	3,666,277	1.27	933	1,092,571	3,900,990	3.57	2,624	234,713	6.40%
1972	2,846,613	3,541,248	1.24	911	1,063,537	3,886,592	3.65	2,683	345,344	9.75%
1973	2,956,013	3,492,199	1.18	867	1,065,414	3,980,338	3.74	2,749	488,139	13.98%
1974	3,072,327	3,669,832	1.19	875	1,123,492	4,204,158	3.74	2,749	534,326	14.56%
1975	3,001,207	3,581,043	1.19	875	1,128,268	4,196,407	3.72	2,734	615,364	17.18%
1976	2,783,630	3,263,454	1.17	860	1,084,993	4,361,658	4.02	2,955	1,098,204	33.65%
1977	2,693,030	3,039,155	1.13	931	1,020,797	4,187,227	4.10	3,014	1,148,072	37.78%
1978	2,671,798	2,897,906	1.08	794	995,674	3,824,323	3.84	2,822	926,417	31.97%
1979	2,803,166	3,216,228	1.15	845	1,056,652	3,998,131	3.78	2,778	781,903	24.31%
1980	2,769,495	3,058,785	1.10	809	1,043,241	3,988,611	3.82	2,808	929,826	30.40%
1981	2,769,112	3,192,402	1.15	845	962,925	3,825,050	3.97	2,918	632,648	19.82%
1982	2,515,637	2,918,781	1.16	853	888,575	3,608,490	4.06	2,984	689,709	23.63%
1983	2,416,885	2,538,349	1.05	772	867,835	3,333,260	3.84	2,822	794,911	31.32%
1984	2,647,285	2,654,712	1.00	735	895,034	3,360,256	3.75	2,756	705,544	26.58%
1985	2,616,876	2,468,408	0.94	691	830,841	3,296,232	3.97	2,918	827,824	33.54%
1986	2,576,012	1,821,898	0.71	522	833,937	2,837,518	3.40	2,499	1,015,620	55.75%
1987	2,666,891	2,144,276	0.80	588	839,567	2,749,625	3.28	2,411	605,349	28.23%
1988	2,885,053	2,591,698	0.90	662	919,126	2,854,307	3.11	2,286	262,609	10.13%
1989	2,942,429	2,743,768	0.93	684	948,876	3,119,682	3.29	2,418	375,914	13.70%
1990	2,974,647	2,943,702	0.99	728	1,004,483	3,328,850	3.35	2,462	385,148	13.08%
1991	2,813,019	2,637,852	0.94	691	960,370	3,033,473	3.16	2,323	395,621	15.00%
1992	2,481,845	2,437,855	0.98	720	878,485	3,247,280	3.70	2,720	809,425	33.20%
1993	2,677,597	2,694,852	1.03	757	973,811	3,476,144	3.57	2,624	781,292	28.99%
1994	2,984,067	3,203,572	1.07	786	1,045,936	3,371,582	3.22	2,367	168,010	5.24%
1995	3,023,427	3,231,211	1.07	786	1,083,992	3,293,672	3.04	2,234	62,461	1.93%
1996	3,123,596	3,429,445	1.10	809	1,076,554	3,445,080	3.20	2,352	15,635	0.46%
1997	3,076,026	3,033,895	0.99	728	1,068,711	3,444,677	3.22	2,367	410,782	13.54%
1998	3,030,695	2,719,680	0.90	662	1,072,121	3,238,291	3.02	2,220	518,611	19.07%
1999	3,051,315	2,707,395	0.94	691	1,025,529	3,056,378	3.15	2,315	348,983	12.89%
2000	3,051,456	2,679,122	0.88	647	1,052,084	2,885,039	2.73	2,007	205,917	7.69%

(a) Influent is sampled weekly at AAC below Drop 1.

(b) Effluent is sampled weekly on Alamo and New Rivers at Salton Sea boundary.
Direct to Sea salt concentration is a weighted average of the Alamo and New Rivers concentration at Salton Sea boundary.
Value is corrected to exclude Mexico's contribution.

Note: Prior to 1973 weekly samples from AAC at Station 2963 (East Highline Check). Prior to January 1, 1970, all salt concentrations were obtained by drying to 105 degrees C. Subsequent to January 1, 1970, salt concentrations were obtained by drying to 180 degrees C.

WATER INFORMATION 2000

VI. DRAINAGE SYSTEM

Annual Summary

2000

Drainage Inflow to Salton Sea
(Mexico and Imperial Valley)

	2000 (A.F.)	1999 (A.F.)
Alamo River		
Border from Mexico (m)	2,059	1,688
Main Canal Operational Loss (m) ;	60	124
Vail Supply to Alamo Above No End Dam	29	124
All-American Canal Alamo Spillway	0	0
Rositas Spillway at Rose Heading	31	0
Division Operational Loss (m) ;	741	1,287
*Imperial Valley Drainage Contribution (c)	642,867	640,327
Alamo River Discharge to Salton Sea	**645,727**	**643,426**
New River.		
Border of Mexico (m)	158,115	176,488
Main Canal Operational Loss (m)	53	86
No. 4 Spillway	0	0
Vail Spillway at New River	51	64
All-American Canal New River Spillway	0	22
Dahlia Spillway	2	0
Dixie Spillway	0	0
Division Operational Loss (m) ;	154	609
*Imperial Valley Drainage Contribution (c)	287,025	288,596
New River Discharge to Salton Sea	**445,347**	**465,779**
Direct to Salton Sea:		
Main Canal Operational Loss (m)	902	68
East Highline at "Z" Spillway	10	0
Storm Drain	892	68
Division Operational Loss (m) ;	0	0
*Imperial Valley Drainage Contribution (m)	102,306	94,346
(see Note A for specific sites)		
Direct Discharge to Salton Sea	**103,208**	**94,414**
Total Discharge to Salon Sea from Imperial Valley and Mexico		
Border from Mexico (m)	160,174	178,176
Main Canal Operational Loss (m)	1,015	278
Division Operational Loss (m) ;	895	1,896
*Imperial Valley Drainage Contribution (c)	1,032,198	1,023,269
Mexico & Imperial Valley to Salton Sea	**1,194,282**	**1,203,619**

* Imperial Valley Drainage Contribution includes division operational discharge, tile discharge, tailwater, subsurface seepage, stormwater, city and industrial effluent and other miscellaneous discharge.

Annual Summary
2000
Drainage Inflow to Salton Sea
(continued)

Note A: Imperial Valley - Direct Discharge to the Salton Sea

Northend Division direct-to-sea:

P Lateral
Q Lateral
R Lateral
Trifolium Lateral 12
Trifolium Lateral 13
Vail Lateral 4A
Vail Lateral 5A
Vail Lateral 6

Niland 1 Drain
Niland 2 Drain
Niland 3 Drain
Niland 4 Drain
Niland 4A Drain
Niland 5 Drain
O Drain
P Drain
Pumice Drain
Q Drain
R Drain
S Drain
T Drain
Trifolium 1 Drain
Trifolium 10 Drain
Trifolium 11 Drain
Trifolium 12 Drain
Trifolium 13 Drain
Trifolium Extension 20 Drain
Trifolium Extension 20A Drain
Trifolium Extension 22 Drain
Trifolium Extension 23 Drain
U Drain
Vail Cutoff Drain
W / Y Drain
Z Drain

Annual Summary
2000
Salton Sea Weather Stations
Pan Evaporation
(feet)

Month	2000 T.F. Evap.	2000 D.H. Evap.	2000 S.F. Evap.	2000 *Avg. Evap.	25-Yr. Avg. Evap.	Deviation from 25-Yr. Avg
January	0.330	0.167	0.305	0.267	0.292	-0.025
February	0.368	0.222	0.318	0.303	0.322	-0.019
March	0.561	0.374	0.576	0.504	0.525	-0.021
April	0.853	0.554	0.751	0.719	0.725	-0.006
May	1.118	0.736	1.035	0.963	0.920	0.043
June	1.090	0.834	1.030	0.985	0.952	0.033
July	1.152	0.813	1.137	1.034	1.044	-0.010
August	1.051	0.804	1.074	0.976	0.995	-0.019
September	0.841	0.678	0.877	0.799	0.843	-0.044
October	0.673	0.541	0.633	0.616	0.642	-0.026
November	0.419	0.364	0.493	0.425	0.415	0.010
December	0.380	0.294	0.387	0.354	0.295	0.059
Total	**8.836**	**6.381**	**8.616**	**7.944**	**7.970**	**-0.026**

T.F. = Three Flags Weather Station, southwest shore of Salton Sea
D.H. = Devil's Hole Weather Station, north shore of Salton Sea
S.F. = Salt Farm Weather Station, southeast shore of Salton Sea

*Avg. = Average evaporation for three stations.

The Three Flags Station replaced Sandy Beach Weather Station during June 1990. Three Flags is located two miles south of the abandoned Sandy Beach Station.

25-year average evaporation is based on period 1969-1994.

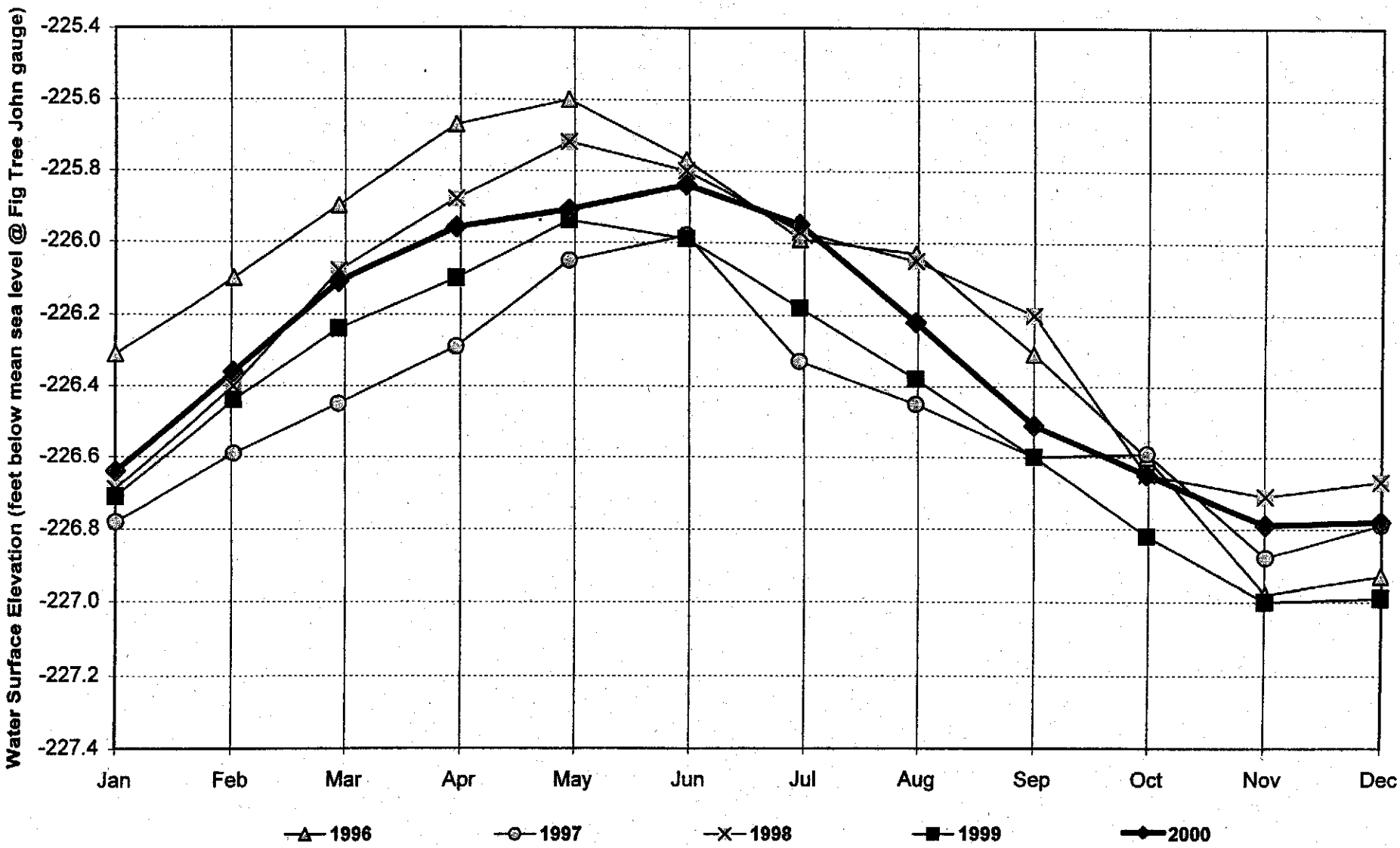
Historical Summary

Salton Sea Water Surface Elevation

Monthly
Elevation in Feet below Mean Sea Level @ Fig Tree John

Month	1996	1997	1998	1999	2000
January	226.31	226.78	226.69	226.71	226.64
February	226.10	226.59	226.40	226.44	226.36
March	225.90	226.45	226.08	226.24	226.11
April	225.67	226.29	225.88	226.10	225.96
May	225.60	226.05	225.72	225.94	225.91
June	225.77	225.98	225.80	225.99	225.84
July	225.99	226.33	225.97	226.18	225.95
August	226.03	226.45	226.05	226.38	226.22
September	226.31	226.60	226.20	226.60	226.51
October	226.60	226.59	226.65	226.82	226.65
November	226.98	226.88	226.71	227.00	226.79
December	226.93	226.79	226.67	226.99	226.78

SALTON SEA WATER SURFACE ELEVATION
Monthly
1996 - 2000



Historical Summary

Salton Sea Water Surface Elevation

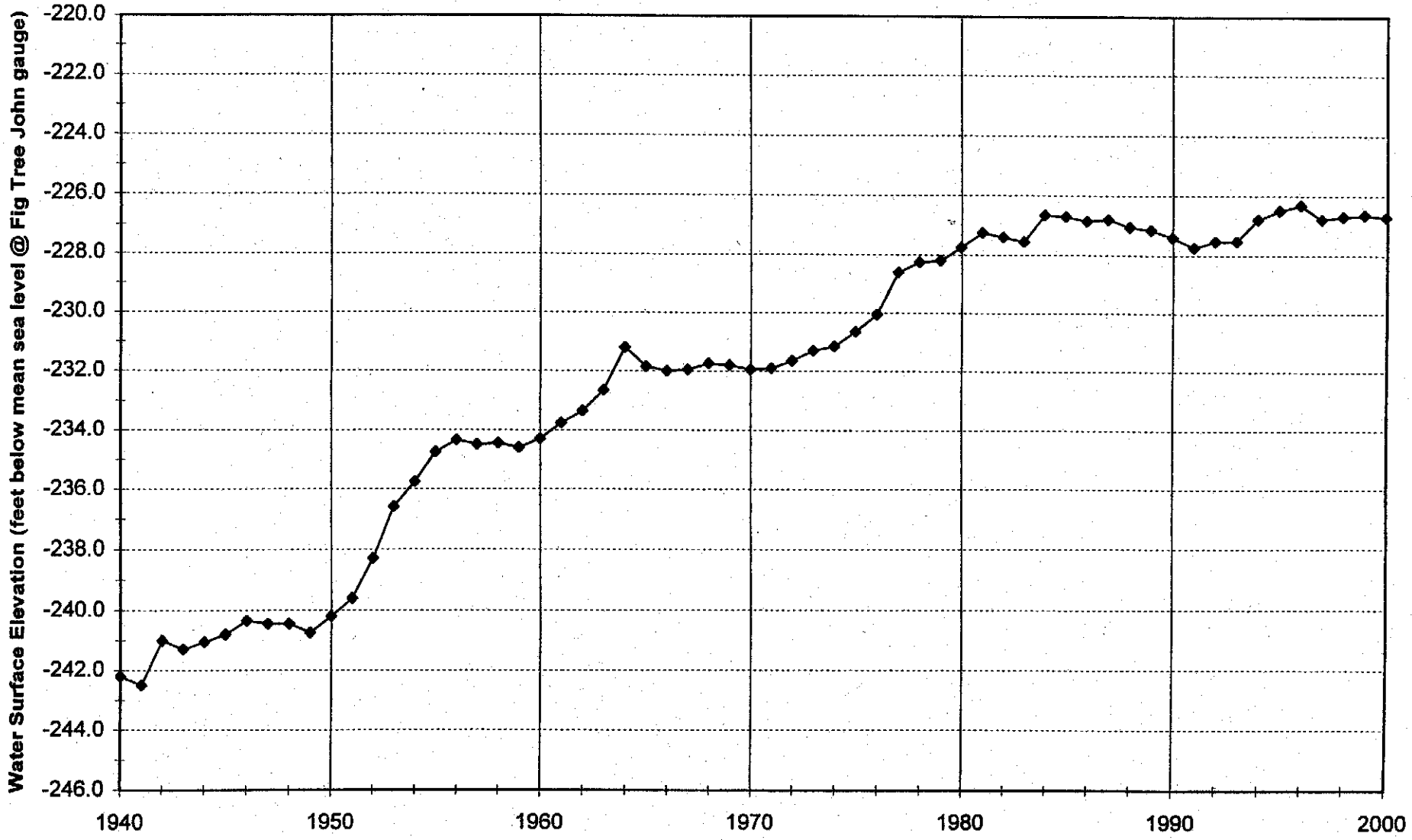
Annual 1940 - 2000

(elevation in feet below Sea level @ Fig Tree John gauge)

Year	Elevation End of Year	Year	Elevation End of Year	Year	Elevation End of Year
1940	242.50	**1970**	231.90	**2000**	226.84
1941	241.00	**1971**	231.65		
1942	241.30	**1972**	231.30		
1943	241.05	**1973**	231.15		
1944	240.80	**1974**	230.65		
1945	240.35	**1975**	230.05		
1946	240.45	**1976**	228.60		
1947	240.45	**1977**	228.25		
1948	240.75	**1978**	228.20		
1949	240.20	**1979**	227.75		
1950	239.60	**1980**	227.25		
1951	238.30	**1981**	227.40		
1952	236.60	**1982**	227.55		
1953	235.75	**1983**	226.65		
1954	234.75	**1984**	226.70		
1955	234.35	**1985**	226.85		
1956	234.50	**1986**	226.80		
1957	234.45	**1987**	227.09		
1958	234.60	**1988**	227.15		
1959	234.30	**1989**	227.41		
1960	233.75	**1990**	227.72		
1961	233.35	**1991**	227.51		
1962	232.65	**1992**	227.51		
1963	231.20	**1993**	226.79		
1964	231.85	**1994**	226.48		
1965	232.00	**1995**	226.31		
1966	231.95	**1996**	226.79		
1967	231.75	**1997**	226.69		
1968	231.80	**1998**	226.65		
1969	231.95	**1999**	226.72		

Note: During January 1991, the Steven's Recorder and Easy Logger were removed and replaced with a Remote Terminal Unit (RTU). End of the year elevations beginning with 1990 are from RTU measurements.

SALTON SEA WATER SURFACE ELEVATION
Annual
1940 - 2000



Historical Summary

Annual Salton Sea Salinity

(1950-2000)

Year	Total Dissolved Solids (TDS) [1] p.p.m.	t.a.f. [2]	Year	Total Dissolved Solids (TDS) [1] p.p.m.	t.a.f. [2]
1950	38,100	51.82	1980	37,616	51.16
1951	38,808	52.78	1981	38,451	52.29
1952	36,089	49.08	1982	39,897	54.26
1953	35,158	47.81	1983	39,479	53.69
1954	34,000	46.24	1984	40,335	54.86
1955	33,451	45.49	1985	40,021	54.43
1956	34,113	46.39	1986	40,792	55.48
1957	34,573	47.02	1987	40,516	55.10
1958	35,769	48.65	1988	42,654	58.01
1959	35,749	48.62	1989	42,327	57.56
1960	35,366	48.10	1990	43,582	59.27
1961	35,303	48.01	1991	42,151	57.33
1962	35,122	47.77	1992	43,773	59.53
1963	35,998	48.96	1993	42,876	58.31
1964	36,727	49.95	1994	41,771	56.81
1965	36,835	50.10	1995	40,422	54.97
1966	36,339	49.42	1996	42,738	58.12
1967	38,120	51.84	1997	43,969	59.80
1968	38,540	52.41	1998	43,562	59.25
1969	40,009	54.41	1999	41,969	57.08
1970	38,583	52.47	2000	43,787	59.55
1971	39,150	53.24			
1972	39,013	53.06			
1973	39,186	53.29			
1974	39,183	53.29			
1975	38,973	53.00			
1976	38,528	52.40			
1977	38,461	52.31			
1978	38,141	51.87			
1979	38,423	52.26			

[1] Annual TDS value is an average of surface samples taken at Bertram Station, Desert Beach, Sandy Beach and Salton Sea Bach for each respective year.

[2] t.a.f. (tons per acre-foot) = p.p.m. x 0.00136

Notes: All Samples are surface samples taken in May and November of each year. Samples taken between the Alamo and New Rivers have been excluded due to possible influence of fresh waters from the Rivers on salinity determination of the Sea. p.p.m. was determined by evaporation (dried at 180° C since January 1, 1970 and 105° C prior to January 1, 1970)

WATER INFORMATION 2000

VII. WEATHER STATION DATA

IMPERIAL IRRIGATION DISTRICT

LOCATION OF WEATHER STATIONS

Imperial County

Brawley (U.S.D.A.)
Approximately two miles southwest of Brawley (Research Center)
N.E.1/4 of N.E.1/4, Section 7,14-14 (Elev. -100)
Latitude 32° 57' 30" North, Longitude 115° 33' 30" West

Imperial (U.S.W.B.)
City of Imperial at IID Headquarters
S.E.1/4 of N.W.1/4, Section 18,15-14 (Elev. -64)
Latitude 32° 51' North, Longitude 115° 34' West

Three Flags (IID) '"replaced Sandy Beach Station in 1990
Approximately two miles south of abandoned Sandy Beach Station
Southwest shores of the Salton Sea
S.E.1/4 of S.W. 1/2, Section 33, 11-11

Salt Farm (IID)
Approximately 0.25 miles east of Niland Marina
Southeast shores of the Salton Sea
N.W. 1/4 of N.W. 1/4, Section 6, 10-13
Latitude 33° 20' 18" North, Longitude 115° 39' 36" West

Riverside County

Devils Hole (IID)
Approximately 0.50 miles south of Highway 111
North shores of the Salton Sea
N.E. 1/4 of N.E.1/4, Section 31, 7-10
Latitude 33° 31' 29" North, Longitude 116° 58' 24" West

Annual Summary

2000

Monthly Rainfall
IID rain Gauges
(inches)

Month	Calipatria	Calexico	Imperial
January	0.00	0.00	0.00
February	0.30	0.04	0.19
March	0.05	0.39	0.09
April	0.00	0.00	0.00
May	0.00	0.00	0.00
June	0.55	0.00	0.00
July	0.00	0.00	0.00
August	0.02	0.28	0.08
September	0.00	0.00	0.04
October	0.02	0.40	0.52
November	0.01	0.00	0.03
December	0.00	0.00	0.00
Total	**0.95**	**1.11**	**0.95**
Historical Average	**3.25**	**2.95**	**3.12**

Annual Summary
2000
Monthly Evaporation
Imperial Valley Stations
(inches)

Month	Brawley	Three Flags	Devil's Hole	Salt Farm	Imperial	Valley Stations Monthly Average 2000	Valley Stations Monthly Average Long-Term
January	3.85	3.96	2.00	3.66	3.44	3.38	3.34
February	5.09	4.42	2.66	3.82	4.66	4.13	4.11
March	7.71	6.73	4.49	6.91	7.00	6.57	6.68
April	11.00	10.24	6.65	9.01	10.11	9.40	9.04
May	13.99	13.42	8.83	12.42	13.29	12.39	11.46
June	13.92	13.08	10.01	12.36	13.26	12.53	13.07
July	15.03	13.82	9.76	13.64	14.71	13.39	13.13
August	13.02	12.61	9.65	12.89	10.88	11.81	12.20
September	11.92	10.09	8.14	10.52	7.90	9.71	10.08
October	7.29	8.08	6.49	7.60	6.26	7.14	7.48
November	4.09	5.03	4.37	5.92	4.02	4.69	4.72
December	3.53	4.56	3.53	4.64	3.11	3.87	3.16
Total	**110.44**	**106.04**	**76.58**	**103.39**	**98.64**	**99.02**	**98.47**
Historical Average	114.2	112.8	88.20	97.6	103.6		

Annual Summary
2000
Monthly Mean Maximum Temperatures
Imperial Valley Stations
(degrees Fahrenheit)

Month	Brawley	Imperial	Valley Stations Monthly Average	
			2000	Long-Term
January	73.4	71.9	72.7	67.9
February	74.8	72.8	73.8	72.3
March	79.2	77.7	78.5	77.0
April	90.2	89.0	89.6	84.4
May	98.1	96.5	97.3	90.9
June	103.6	102.5	103.1	101.4
July	107.0	106.1	106.6	104.9
August	107.0	104.9	106.0	103.8
September	102.0	100.3	101.2	99.4
October	87.0	95.7	91.4	89.9
November	74.1	73.0	73.6	76.8
December	74.2	73.2	73.7	67.9
Annual Mean	**89.2**	**88.6**	**88.9**	**86.4**

Historical Summary

Annual Rainfall

IID Rain Gauges

(inches)

Year	Calipatria	Calexico	Imperial	Valley-Wide Annual Mean
1980	5.06	4.27	4.35	4.35
1981	1.69	2.00	2.52	2.00
1982	3.21	6.99	4.84	4.84
1983	8.08	4.22	5.72	5.72
1984	4.90	2.76	3.43	3.43
1985	3.23	3.39	3.74	3.39
1986	3.69	1.36	3.73	3.69
1987	2.77	3.06	2.58	2.77
1988	1.72	1.72	1.32	1.72
1989	1.17	1.26	0.75	1.17
1990	1.64	1.61	1.46	1.61
1991	3.67	3.69	4.57	3.69
1992	7.01	7.17	5.25	7.01
1993	6.49	4.90	5.34	5.34
1994	2.84	2.02	3.05	2.84
1995	2.69	2.02	2.16	2.16
1996	0.31	0.34	0.82	0.34
1997	2.64	4.33	3.64	3.64
1998	2.65	1.99	3.26	2.65
1999	1.85	1.71	2.01	1.85
2000	0.95	1.11	0.95	0.95
Historical Average	3.25	2.95	3.12	3.12

IMPERIAL IRRIGATION DISTRICT
RECORD OF RAINFALL IN INCHES
@ Imperial Station

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1914	0.06	0.62	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.25	0.90	0.93	2.83
1915	2.30	0.02	0.10	0.28	0.00	0.00	0.00	0.60	0.02	0.00	0.00	0.00	3.32
1916	1.09	0.00	1.41	0.25	0.00	0.00	0.00	1.25	0.40	0.00	0.00	0.40	4.80
1917	1.32	0.00	0.00	0.10	0.00	0.00	0.20	0.00	0.02	Trace	0.00	0.00	1.64
1918	0.63	0.06	0.72	0.00	0.00	Trace	Trace	0.00	0.00	Trace	0.09	0.35	1.85
1919	0.08	0.40	0.26	0.00	0.02	0.00	0.08	0.00	0.89	0.28	0.84	Trace	2.85
1920	0.88	1.52	0.06	0.00	Trace	0.00	Trace	1.05	1.30	0.10	0.00	0.00	4.91
1921	0.47	0.00	0.03	0.00	0.12	0.00	0.06	2.84	0.85	0.00	0.00	1.66	6.03
1922	0.68	0.75	Trace	0.00	Trace	Trace	0.78	Trace	0.11	0.00	0.22	0.03	2.57
1923	0.09	0.10	0.40	0.20	0.00	0.00	0.02	0.02	0.59	0.02	1.29	0.78	3.51
1924	0.00	0.00	0.17	Trace	0.14	Trace	Trace	0.00	0.02	0.00	0.00	0.33	0.66
1925	Trace	0.03	0.24	0.09	0.00	0.00	Trace	0.16	Trace	1.62	0.30	0.50	2.94
1926	0.17	0.00	0.02	1.11	0.00	0.00	0.00	0.05	1.30	0.00	0.00	3.87	6.52
1927	0.12	0.64	0.11	0.02	0.00	0.00	Trace	Trace	0.00	0.89	0.00	2.92	4.70
1928	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	Trace	Trace	0.28
1929	0.15	Trace	0.00	Trace	Trace	Trace	Trace	0.26	1.23	0.00	Trace	Trace	1.64
1930	0.35	Trace	0.38	0.03	0.41	Trace	Trace	Trace	0.73	0.00	Trace	0.00	1.90
1931	0.06	1.90	0.00	0.93	0.00	0.00	0.05	0.51	0.57	0.10	0.33	0.30	4.75
1932	0.00	1.14	0.00	0.00	0.00	Trace	0.00	0.00	0.00	2.86	0.00	0.62	4.62
1933	0.47	Trace	0.00	0.79	0.02	0.00	0.10	0.63	0.01	0.30	0.06	Trace	2.38
1934	0.01	0.18	0.08	0.00	0.00	0.00	0.01	0.08	0.00	Trace	0.01	0.25	0.62
1935	0.62	2.12	0.12	Trace	Trace	0.00	0.12	1.14	0.50	0.00	Trace	0.70	5.32
1936	0.25	0.57	0.00	0.00	0.00	0.00	0.25	Trace	0.00	0.10	0.21	0.21	1.59
1937	0.19	0.10	0.61	0.00	Trace	0.00	0.35	0.00	0.15	0.00	0.00	0.09	1.49
1938	Trace	1.19	0.59	0.00	0.00	0.00	0.47	0.23	0.00	0.00	0.00	1.36	3.84
1939	0.73	0.45	Trace	0.00	0.00	0.00	0.00	0.00	7.06	Trace	0.28	Trace	8.52
1940	0.05	0.77	0.01	0.01	0.00	0.00	0.00	0.00	1.73	0.07	0.05	2.38	5.07
1941	0.85	0.30	1.10	0.46	0.01	0.00	0.06	1.08	0.28	1.04	0.10	1.34	6.62
1942	0.13	0.74	0.55	0.41	0.00	0.00	0.00	0.65	0.00	0.01	0.00	0.00	2.49
1943	0.44	0.04	0.24	Trace	0.00	0.00	0.00	0.90	0.38	0.00	0.00	2.46	4.46
1944	0.01	1.31	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.04	0.90	1.15	3.59
1945	0.57	0.07	0.03	0.03	0.00	0.00	Trace	1.44	Trace	Trace	0.00	0.67	2.81
1946	0.01	0.00	Trace	Trace	0.00	0.00	0.01	2.16	0.05	0.21	0.14	0.57	3.15
1947	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.06	0.08	0.03	0.10	0.14	0.49
1948	0.00	0.15	0.04	0.00	0.00	0.04	0.00	0.00	0.00	0.81	0.00	0.29	1.33
1949	1.77	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.04	0.20	0.03	0.19	2.29
1950	0.00	0.19	0.00	0.00	Trace	0.00	0.17	0.00	0.06	0.00	0.00	0.03	0.45
1951	0.38	0.01	0.01	0.13	0.00	0.00	0.18	1.79	0.00	Trace	0.26	0.36	3.12
1952	0.63	0.05	0.40	0.42	0.00	0.00	0.03	0.28	0.00	0.00	0.64	0.19	2.64
1953	0.00	0.02	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
1954	0.53	0.00	0.18	0.00	0.00	0.00	0.06	0.00	0.03	0.00	0.00	0.03	0.83
1955	1.60	0.00	0.06	0.00	0.00	0.00	0.29	0.53	0.00	0.00	0.00	0.05	2.53
1956	0.13	0.01	0.00	Trace	0.01	0.00	Trace	0.00	Trace	0.00	0.00	0.01	0.16
1957	0.63	0.04	0.07	0.03	0.00	0.00	0.00	0.45	0.00	2.04	0.02	0.07	3.35
1958	0.08	1.24	0.64	0.61	0.13	0.00	0.00	0.00	0.00	0.00	0.01	0.00	2.71
1959	0.15	0.23	Trace	Trace	0.00	0.00	0.02	0.02	0.11	0.40	0.01	1.03	1.97
1960	0.50	0.15	0.30	0.00	0.01	0.00	0.03	0.01	0.53	Trace	0.14	0.07	1.74

IMPERIAL IRRIGATION DISTRICT
RECORD OF RAINFALL IN INCHES
@ Imperial Station

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1961	0.20	0.00	0.00	0.00	0.00	0.00	0.04	0.75	0.00	0.00	0.05	0.83	1.87
1962	0.77	0.23	0.05	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.78	1.85
1963	0.06	0.14	0.18	0.00	0.00	0.00	0.00	0.30	1.06	0.23	0.46	0.00	2.43
1964	0.01	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.29	0.01	0.93
1965	0.04	0.22	0.10	0.72	0.00	0.00	Trace	0.00	0.00	0.00	0.24	1.89	3.21
1966	0.32	0.10	0.18	0.00	0.00	0.00	0.00	0.00	0.47	0.48	0.06	0.00	1.61
1967	0.34	0.00	0.12	Trace	0.00	0.00	0.00	0.21	1.31	0.00	1.50	0.77	4.25
1968	0.00	0.06	0.58	0.00	0.00	0.00	1.31	0.00	0.00	0.00	0.00	0.04	1.99
1969	0.92	0.08	0.02	0.00	0.00	0.00	0.00	0.01	0.82	0.02	1.51	0.12	3.50
1970	0.00	0.69	0.83	0.00	0.00	0.00	0.00	0.02	0.03	Trace	0.02	0.09	1.68
1971	0.10	0.01	0.00	0.13	0.00	0.00	0.00	0.32	0.44	0.18	0.00	0.11	1.29
1972	0.00	0.00	0.00	0.00	0.00	Trace	0.00	0.00	Trace	1.71	0.45	0.00	2.16
1973	0.03	0.58	0.31	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.09	0.00	1.28
1974	1.11	0.00	0.18	0.00	0.00	0.00	0.04	0.00	0.09	0.12	0.00	0.44	1.98
1975	0.07	0.00	0.16	0.47	0.00	0.00	0.20	0.00	0.17	0.00	0.00	0.12	1.19
1976	0.00	0.84	0.00	0.36	0.02	0.00	0.29	0.00	2.84	0.00	0.58	0.15	5.08
1977	0.05	0.02	0.04	0.00	0.00	0.00	0.01	3.87	0.00	0.29	0.00	0.93	5.21
1978	1.15	0.46	0.39	0.09	0.00	0.00	0.47	0.00	0.00	0.65	0.57	0.59	4.37
1979	1.09	0.09	0.60	0.00	0.09	0.00	0.07	0.40	0.01	0.00	0.00	0.00	2.35
1980	1.59	1.41	1.06	0.23	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	4.35
1981	0.88	0.36	0.60	0.00	0.05	0.00	0.00	0.36	Trace	0.00	0.27	0.00	2.52
1982	0.31	0.09	0.82	0.00	0.00	0.00	0.00	0.49	0.63	0.00	0.10	2.40	4.84
1983	0.23	1.25	1.64	Trace	0.00	0.00	0.00	1.21	0.79	0.00	0.00	0.60	5.72
1984	0.20	0.00	0.00	0.00	0.00	0.00	0.76	0.81	0.03	0.00	0.20	1.43	3.43
1985	0.03	0.12	0.00	0.00	0.00	0.00	0.02	0.15	1.40	0.36	0.90	0.76	3.74
1986	0.14	0.50	0.12	0.00	0.00	0.00	0.06	0.05	0.04	2.59	0.19	0.04	3.73
1987	0.05	0.22	Trace	0.00	Trace	0.00	0.00	0.14	0.01	1.12	0.72	0.32	2.58
1988	0.11	0.90	0.00	0.07	0.00	0.01	0.04	0.12	0.00	0.00	0.07	0.00	1.32
1989	0.65	0.00	0.01	0.00	0.00	0.00	0.00	0.09	0.00	Trace	0.00	0.00	0.75
1990	0.14	0.02	0.06	0.05	0.00	0.00	0.00	0.89	0.09	0.21	0.00	0.00	1.46
1991	0.54	0.62	0.72	0.00	0.00	0.00	0.47	Trace	0.59	0.02	0.35	1.26	4.57
1992	0.37	0.95	1.85	0.08	0.17	0.00	0.00	0.02	0.00	0.45	0.00	1.36	5.25
1993	3.45	0.84	0.15	0.00	0.03	0.00	0.00	0.03	0.00	0.03	0.80	0.01	5.34
1994	0.06	0.49	0.64	0.00	0.72	0.00	0.00	0.08	0.02	0.00	0.26	0.78	3.05
1995	1.50	0.21	0.07	0.29	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.05	2.16
1996	0.00	0.15	0.04	0.00	0.00	0.00	0.57	0.01	0.00	0.00	0.03	0.02	0.82
1997	0.49	0.01	0.00	0.02	0.08	0.01	0.00	0.00	2.11	0.00	0.01	0.91	3.64
1998	0.15	1.08	0.73	0.00	0.00	0.00	0.00	0.06	1.08	0.00	0.04	0.12	3.26
1999	0.00	0.29	0.00	0.47	0.00	0.00	0.73	0.18	0.34	0.00	0.00	0.00	2.01
2000	0.00	0.19	0.09	0.00	0.00	0.00	0.00	0.08	0.04	0.52	0.03	0.00	0.95
2000 Total to Date	0.00	0.19	0.28	0.28	0.28	0.28	0.28	0.36	0.40	0.92	0.95	0.95	0.95
87 Year Average	0.42	0.36	0.25	0.10	0.02	0.00	0.10	0.33	0.38	0.24	0.19	0.50	2.89
Total to Date	0.42	0.78	1.03	1.13	1.15	1.15	1.25	1.58	1.96	2.20	2.39	2.89	2.89

IMPERIAL IRRIGATION DISTRICT

MAXIMUM, MINIMUM AND MEAN TEMPERATURES BY MONTHS FOR YEARS 1914-2000, INCLUSIVE

Year	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1914	No records for these months												100	51	75.4	112	58	84.4	110	70	89.8
1915	73	30	53.5	79	40	59.2	92	41	63.4	96	48	69.0	103	41	73.3	109	57	85.1	110	62	88.9
1916	75	25	52.3	88	29	61.8	100	42	67.8	100	44	71.8	105	50	75.9	116	55	85.4	111	62	89.9
1917	76	30	50.4	82	32	57.4	93	32	58.8	98	41	66.7	99	48	71.0	117	56	85.5	113	70	91.3
1918	85	26	53.7	88	28	57.1	95	40	64.7	96	44	69.5	98	50	73.0	113	59	88.7	110	59	89.6
1919	82	24	51.6	82	32	56.1	89	35	60.4	100	48	71.8	101	55	77.0	114	57	85.4	111	73	90.7
1920	81	33	55.6	82	41	60.5	85	38	61.1	96	44	68.0	106	41	76.2	108	58	82.8	115	63	91.3
1921	79	28	52.2	93	32	54.2	93	41	66.3	102	40	66.9	104	46	72.5	110	57	84.2	111	63	91.0
1922	75	23	49.5	90	28	55.7	89	32	58.8	96	40	65.1	106	46	77.1	114	62	86.5	111	69	90.3
1923	85	28	56.1	87	30	56.7	89	34	60.4	95	42	67.8	107	52	78.1	114	54	79.5	113	67	88.6
1924	81	27	53.6	91	37	64.2	92	38	66.0	95	39	70.4	107	53	79.8	113	60	88.9	111	65	89.8
1925	82	27	52.6	85	35	61.2	94	39	64.4	100	44	70.7	103	54	78.6	114	55	84.3	115	64	90.6
1926	85	29	53.9	88	33	61.5	91	42	66.9	105	50	73.0	104	55	78.6	113	62	86.9	112	62	90.3
1927	76	32	55.3	87	34	59.6	92	38	62.2	102	41	70.8	110	53	78.7	111	54	84.0	114	68	91.7
1928	86	29	56.2	84	33	57.6	91	42	66.0	96	39	69.6	105	53	77.9	112	57	85.2	114	62	90.3
1929	79	25	50.7	88	24	55.0	95	36	61.9	98	36	66.0	102	49	77.7	117	54	83.9	111	69	90.7
1930	77	28	52.7	89	34	61.0	92	34	62.4	99	45	71.9	104	43	71.7	112	57	83.4	112	68	90.2
1931	85	29	54.8	76	38	58.5	95	37	64.5	97	51	72.5	108	55	80.0	111	58	84.7	116	75	95.2
1932	75	25	49.7	87	28	57.2	94	40	64.1	98	47	69.2	102	52	76.9	110	58	84.2	111	63	89.9
1933	76	29	50.2	78	23	51.1	87	39	63.4	96	45	66.2	106	44	73.4	111	57	84.0	117	65	92.9
1934	81	30	56.5	82	40	62.9	101	42	72.6	102	42	75.5	112	54	82.2	106	52	80.5	118	66	93.7
1935	84	29	55.4	84	36	60.1	89	36	60.1	95	43	69.7	102	51	75.0	113	58	88.6	113	61	90.2
1936	78	31	54.9	83	35	59.3	93	41	67.2	101	43	73.3	106	51	80.6	117	54	88.0	119	63	92.4
1937	68	16	43.8	82	31	55.7	88	41	61.2	98	46	69.0	108	53	77.2	110	58	84.7	117	72	94.6
1938	80	33	56.8	82	34	57.1	88	38	61.4	105	40	69.7	111	50	77.9	112	58	85.7	115	62	91.7
1939	78	35	53.6	81	32	42.3	95	32	63.4	102	48	73.2	108	55	79.2	114	59	85.1	118	66	92.2
1940	83	32	57.8	83	35	58.5	91	39	66.8	103	52	72.3	108	61	82.7	117	62	88.4	116	61	90.8
1941	74	38	56.5	78	44	61.0	87	43	63.8	95	45	67.3	105	48	79.6	108	58	83.4	114	66	91.6
1942	80	27	56.4	78	33	56.3	93	38	62.5	94	45	69.1	110	46	76.7	113	58	85.6	118	71	94.5
1943	85	25	55.6	85	32	60.5	95	44	67.0	100	45	72.1	106	55	79.0	110	53	81.5	119	62	89.9
1944	80	31	53.9	78	32	54.5	88	39	61.3	99	47	69.3	100	50	76.3	110	57	79.9	112	64	87.9
1945	81	33	55.9	82	36	58.5	88	37	60.3	100	35	68.5	100	54	76.1	114	58	83.5	113	72	91.9
1946	78	31	54.9	86	31	56.3	87	40	62.3	101	44	73.1	103	56	77.0	111	60	87.6	111	67	91.5
1947	83	28	52.9	85	39	61.7	88	42	64.8	104	45	72.9	116	52	79.7	110	61	84.7	113	67	92.3
1948	84	25	54.8	85	26	56.9	85	35	59.0	100	41	70.5	104	50	77.3	114	54	83.7	113	65	89.8
1949	71	21	45.3	82	28	53.8	85	41	61.6	102	45	73.3	106	53	77.0	110	57	86.1	115	66	90.7
1950	82	21	51.7	85	34	61.0	95	36	64.9	101	45	73.6	103	49	75.5	118	57	83.6	117	65	89.8
1951	84	32	54.4	88	31	57.5	88	33	62.4	98	46	69.7	111	47	77.4	110	56	83.2	113	63	91.4
1952	75	26	51.4	81	35	58.0	87	37	59.4	95	50	69.5	105	56	81.6	110	55	82.7	111	67	90.5
1953	86	34	59.9	85	30	58.3	91	35	63.5	97	44	68.4	99	49	72.4	113	53	83.6	114	72	93.6
1954	84	31	56.0	92	41	64.4	90	37	61.9	103	45	74.5	102	50	78.0	112	53	83.5	116	71	92.9
1955	77	35	51.9	83	29	55.2	92	35	63.6	88	50	69.0	103	48	74.9	113	55	84.1	113	64	88.7
1956	80	35	58.1	80	29	54.3	93	33	64.9	98	41	68.9	104	52	76.8	113	59	87.1	110	64	90.2
1957	74	30	54.6	89	34	63.7	91	40	64.9	94	45	69.8	102	55	73.8	117	62	88.7	116	71	93.1
1958	80	35	57.5	81	40	61.6	80	38	60.7	102	42	70.4	109	54	82.6	112	61	86.1	117	67	91.2
1959	85	33	58.3	83	37	57.3	91	41	66.9	102	49	74.3	99	51	76.1	116	62	88.8	113	73	94.3
1960	79	27	52.1	81	31	56.9	92	43	67.8	97	47	73.1	109	52	77.8	113	65	89.6	115	69	93.1
1961	83	34	58.0	82	38	60.9	89	43	64.3	103	50	72.3	102	50	76.0	116	56	88.1	114	64	91.2

IMPERIAL IRRIGATION DISTRICT

MAXIMUM, MINIMUM AND MEAN TEMPERATURES BY MONTHS FOR YEARS 1914-2000, INCLUSIVE

	AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			FOR YEAR		
Year	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1914	113	64	88.7	108	60	84.1	100	52	73.4	91	41	65.6	No Record			113	Incomplete	
1915	117	64	90.6	109	52	81.2	104	50	75.5	91	30	60.8	82	28	54.1	117	28	71.2
1916	111	56	87.7	110	57	83.1	95	43	68.2	90	30	58.5	79	25	51.2	116	25	71.1
1917	109	62	88.9	108	53	85.3	106	44	76.2	90	38	63.7	89	31	58.3	117	30	71.0
1918	114	55	86.7	105	56	83.1	110	44	74.7	86	32	59.4	82	28	50.5	114	26	70.9
1919	113	67	90.3	107	60	83.7	94	36	68.3	88	31	59.7	82	31	55.6	114	24	70.9
1920	111	58	87.8	108	53	81.8	102	41	65.7	86	34	58.2	78	29	52.9	115	29	70.1
1921	110	68	88.5	107	57	82.6	103	43	75.1	93	32	62.2	81	33	53.4	111	28	70.8
1922	110	67	88.8	113	59	87.2	100	42	73.3	85	34	58.2	79	34	56.6	114	23	70.6
1923	107	67	87.6	109	51	80.7	97	44	69.7	83	35	62.1	78	32	52.8	114	28	70.2
1924	113	61	89.0	108	48	84.2	100	44	69.4	93	34	61.6	83	23	53.1	113	23	72.5
1925	109	67	88.0	104	52	80.7	101	46	70.4	90	33	60.4	80	31	56.0	115	27	71.1
1926	110	63	89.4	106	53	82.6	100	44	73.1	92	39	63.4	78	27	52.1	113	27	72.6
1927	115	72	90.9	106	56	82.8	101	43	73.8	98	37	63.9	85	31	53.4	115	31	72.3
1928	113	60	88.5	113	54	85.5	102	45	72.2	88	31	61.2	79	29	53.0	114	29	71.9
1929	111	73	90.5	112	54	80.8	104	40	73.8	88	30	59.2	84	31	58.0	117	24	70.8
1930	110	63	87.6	110	51	79.7	100	46	70.2	92	31	61.0	77	26	51.5	112	26	70.3
1931	112	70	89.9	111	58	83.0	98	51	73.1	93	27	58.0	75	28	51.1	116	27	72.2
1932	114	62	89.9	112	60	85.6	102	45	71.8	87	40	63.2	80	30	50.8	114	25	71.0
1933	118	67	91.5	109	59	84.9	105	50	77.9	91	37	63.5	82	29	55.8	118	23	71.2
1934	117	71	94.0	114	53	86.5	109	49	77.5	94	38	65.6	81	31	57.2	118	30	75.5
1935	115	70	90.6	109	63	87.4	99	42	72.9	81	36	59.5	78	33	56.1	115	29	72.2
1936	112	67	91.8	108	52	83.7	103	47	74.2	90	36	62.3	76	32	54.8	119	31	73.6
1937	115	65	93.6	112	61	88.3	99	54	75.9	91	40	64.3	82	33	58.7	117	16	72.4
1938	114	65	90.7	108	64	87.2	101	46	72.5	84	29	57.2	88	35	57.3	115	29	72.2
1939	111	75	92.7	112	58	82.1	95	44	72.4	91	44	64.7	85	32	59.7	118	32	72.7
1940	117	66	92.3	110	62	84.3	101	48	75.1	86	38	61.1	85	30	58.6	117	30	74.1
1941	109	65	87.2	104	53	79.1	100	47	69.5	91	30	64.2	82	37	56.6	114	30	71.7
1942	113	62	91.8	109	60	84.1	101	45	73.9	88	36	63.3	81	32	57.1	118	27	72.6
1943	110	67	88.9	113	64	87.7	105	45	74.8	86	36	62.3	74	35	54.7	119	25	73.0
1944	115	65	91.5	111	57	85.7	101	55	76.1	85	35	60.9	77	33	55.9	115	31	71.2
1945	110	68	90.2	114	56	86.7	101	49	76.2	91	39	61.7	80	31	54.1	114	31	72.1
1946	113	68	92.0	111	63	86.6	96	46	70.1	81	38	59.0	82	35	57.3	113	31	72.4
1947	113	60	89.2	113	64	87.5	105	49	74.5	89	30	57.9	74	28	51.6	116	28	72.4
1948	115	65	91.3	118	54	87.0	103	46	75.5	83	34	58.9	76	31	52.1	118	25	71.4
1949	114	61	89.8	112	64	89.7	102	41	71.5	93	43	67.8	87	26	52.8	115	21	71.6
1950	116	66	90.5	118	58	82.8	106	54	78.7	98	34	67.2	84	35	60.6	118	21	73.3
1951	111	66	89.6	109	62	86.8	105	50	75.6	85	38	60.7	78	30	54.6	113	30	71.9
1952	112	72	92.2	112	51	87.6	108	57	81.6	88	34	58.9	84	32	55.1	112	26	72.4
1953	111	61	90.6	111	61	86.4	101	48	75.2	90	37	64.6	82	26	54.6	114	26	72.7
1954	113	66	88.9	108	54	86.5	101	46	76.5	89	43	66.9	79	27	55.7	116	27	73.8
1955	110	72	90.9	113	60	86.5	104	52	77.7	89	40	63.4	84	37	57.8	113	29	72.0
1956	111	60	88.3	113	64	90.5	100	44	73.5	92	33	62.0	81	29	56.7	113	29	72.7
1957	114	63	90.3	110	61	86.3	101	51	71.9	82	37	60.3	82	36	57.9	117	30	73.0
1958	111	77	92.9	109	60	87.7	103	50	78.3	90	32	63.3	90	36	59.6	117	32	74.4
1959	112	66	90.6	111	60	83.7	101	45	76.5	88	36	64.6	83	36	56.1	116	33	73.9
1960	115	69	91.5	111	64	88.5	103	50	75.2	90	39	62.7	78	28	54.9	115	27	73.6
1961	111	64	90.7	105	59	82.6	103	43	73.5	83	37	60.5	77	33	55.2	116	33	72.8

IMPERIAL IRRIGATION DISTRICT
MAXIMUM, MINIMUM AND MEAN TEMPERATURES BY MONTHS FOR YEARS 1914-2000, INCLUSIVE

Year	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1962	87	25	55.4	81	28	59.1	89	32	59.7	101	50	74.5	101	48	73.5	111	57	84.4	110	68	90.4
1963	73	24	52.0	90	42	65.3	88	39	62.6	95	43	67.5	104	52	79.2	110	51	82.0	114	69	91.1
1964	77	30	52.0	80	32	56.2	91	36	61.5	99	47	68.4	102	45	76.2	112	60	84.0	116	72	92.1
1965	82	33	57.2	88	31	59.5	84	36	62.1	101	44	70.1	105	52	76.9	105	57	80.6	113	69	90.6
1966	77	30	52.8	77	32	55.9	97	34	65.7	98	49	73.6	103	58	80.4	110	62	86.3	115	71	92.3
1967	81	30	55.4	85	38	60.3	91	42	66.0	88	45	63.3	107	48	76.5	111	57	82.7	113	75	93.3
1968	79	33	55.7	90	44	65.4	92	44	66.0	98	46	69.5	108	55	78.7	115	60	86.6	114	68	91.4
1969	82	33	59.5	76	36	57.5	96	38	63.3	95	49	71.1	107	54	80.1	109	62	82.9	115	67	92.8
1970	79	29	55.3	83	39	61.6	90	43	63.9	94	43	66.9	109	53	78.8	119	58	86.8	113	71	93.1
1971	90	23	55.3	89	31	59.2	98	32	64.8	94	44	68.5	99	54	73.8	112	54	84.2	113	67	92.3
1972	75	24	52.9	86	30	61.8	94	46	70.8	96	42	71.7	102	54	78.3	114	66	86.0	116	73	94.0
1973	77	30	53.3	77	40	59.5	80	43	60.7	97	46	68.5	107	54	80.1	117	57	87.9	115	70	91.2
1974	81	28	56.0	81	38	58.3	90	40	65.6	96	47	70.5	111	51	78.7	116	59	89.4	112	69	91.2
1975	83	31	55.1	83	34	57.6	86	40	61.5	88	42	63.7	105	50	75.8	110	59	85.1	115	71	91.7
1976	86	29	57.2	84	40	60.9	89	42	63.0	99	45	67.7	106	55	79.3	115	50	86.8	115	66	90.6
1977	80	33	56.7	91	39	63.3	87	39	60.8	98	43	72.2	105	53	72.6	115	66	88.3	113	72	93.0
1978	76	37	57.4	82	39	60.6	95	47	67.6	93	48	69.3	107	54	78.7	115	62	90.9	116	68	93.6
1979	74	31	52.6	79	35	58.9	89	42	64.1	97	46	71.9	102	52	77.2	115	61	87.6	115	68	91.9
1980	77	38	60.1	85	39	63.2	86	46	63.3	101	46	70.7	101	52	73.9	114	59	87.4	116	73	94.9
1981	83	42	60.9	90	39	61.8	91	44	64.4	97	47	72.9	103	56	78.4	114	65	90.5	112	73	93.2
1982	76	33	55.8	86	37	61.7	83	41	63.5	94	44	76.7	101	52	70.9	108	59	82.8	113	61	90.5
1983	82	35	59.0	85	42	60.5	90	46	65.2	90	45	66.7	114	52	78.9	108	57	84.3	114	67	92.0
1984	82	35	58.7	83	38	60.3	95	40	66.7	101	48	70.2	111	58	83.0	111	61	85.7	112	75	91.9
1985	73	36	54.8	85	28	57.6	86	39	63.8	101	54	74.3	101	57	79.2	114	61	88.6	116	72	93.3
1986	85	38	61.4	96	34	63.4	99	44	69.5	102	51	72.6	106	53	79.7	114	64	89.2	115	70	91.2
1987	83	31	55.1	82	39	60.0	85	41	64.0	101	50	75.9	104	56	78.8	114	65	88.1	112	64	89.8
1988	79	32	55.5	84	37	61.9	99	40	66.4	101	45	70.7	108	50	77.4	108	54	85.1	111	69	91.6
1989	78	32	54.1	93	30	59.9	96	42	68.8	105	51	76.8	106	54	79.4	111	62	86.9	114	69	92.7
1990	78	31	54.9	86	29	57.9	93	41	66.4	99	53	73.6	102	54	76.9	117	59	87.3	114	69	92.2
1991	77	31	54.9	85	39	64.3	82	38	60.2	98	45	70.1	102	51	75.0	106	60	82.0	112	69	88.8
1992	80	35	55.8	83	44	62.4	85	45	63.9	101	51	74.3	99	60	79.8	108	62	84.6	114	65	89.5
1993	74	29	54.0	78	40	58.6	90	44	67.5	101	50	73.3	100	52	79.1	114	57	86.9	113	67	89.4
1994	82	34	57.5	80	33	56.9	92	44	67.1	100	48	71.3	105	51	75.9	115	63	88.7	112	67	92.3
1995	78	37	55.4	87	42	64.3	90	40	64.7	97	41	68.8	102	52	73.1	111	54	82.8	121	68	91.5
1996	82	34	57.8	87	35	62.7	91	43	66.2	103	52	72.7	108	57	80.7	110	53	86.1	115	61	91.1
1997	78	37	57.0	83	34	58.0	94	37	66.6	97	41	69.7	107	59	82.5	107	57	83.4	113	63	88.4
1998	79	34	56.5	75	40	57.4	91	41	62.6	98	44	67.0	95	51	72.9	114	55	81.9	116	68	91.7
1999	77	36	56.7	84	36	59.0	90	42	61.8	100	41	65.0	105	48	76.3	110	52	83.6	111	69	89.7
2000	82	35	59.1	80	41	61.6	89	43	64.6	101	50	74.8	112	55	81.9	111	61	88.4	113	66	91.6
Average	79.7	30.5	54.9	84.1	34.7	59.1	90.6	39.5	64.0	98.4	45.4	70.5	104.8	51.9	77.4	112.3	58.1	85.4	113.8	67.3	91.4

IMPERIAL IRRIGATION DISTRICT

MAXIMUM, MINIMUM AND MEAN TEMPERATURES BY MONTHS FOR YEARS 1914-2000, INCLUSIVE

Year	AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			FOR YEAR		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1962	113	69	93.6	110	61	87.1	102	55	76.0	93	42	66.3	83	34	58.0	113	25	73.2
1963	110	72	90.3	111	66	87.3	102	58	78.1	89	42	64.5	80	33	56.0	114	24	73.0
1964	111	68	90.5	107	61	83.7	105	55	79.3	86	33	60.7	85	32	56.8	116	30	71.9
1965	111	70	91.2	110	58	82.0	105	53	78.4	90	41	66.0	80	36	55.2	113	31	72.6
1966	111	70	92.6	109	62	86.1	95	49	74.6	94	43	65.1	82	32	57.4	115	30	73.7
1967	113	74	93.5	104	65	85.5	97	54	77.7	94	44	67.9	78	33	53.2	113	30	73.0
1968	108	65	88.6	113	58	85.5	98	53	76.0	88	42	65.9	75	27	52.4	115	27	73.5
1969	117	75	95.9	113	65	88.7	102	51	72.5	89	42	64.7	77	33	57.7	117	33	74.0
1970	114	72	93.5	111	57	84.5	98	42	72.9	87	43	63.8	78	37	55.2	119	29	73.1
1971	110	71	91.3	115	56	85.6	102	36	69.9	87	39	61.7	72	31	52.5	115	23	71.7
1972	116	68	89.5	107	61	84.2	104	52	72.0	84	41	60.5	78	28	54.2	116	24	73.0
1973	111	64	91.0	110	60	83.8	99	50	75.4	92	40	63.9	80	37	57.5	117	30	72.8
1974	112	68	90.7	110	67	88.6	102	49	75.8	88	40	64.2	79	30	53.7	116	28	73.6
1975	115	69	91.8	109	66	87.7	103	43	73.3	92	37	63.3	85	32	57.2	115	31	72.1
1976	111	64	89.1	105	66	82.6	98	47	75.0	92	33	65.9	79	33	56.5	115	29	72.9
1977	112	72	91.6	111	60	85.6	99	51	78.3	89	41	66.3	83	41	59.6	115	33	74.1
1978	111	65	91.6	107	60	84.7	105	57	79.9	89	42	63.0	75	29	53.0	116	29	74.3
1979	112	69	88.7	111	70	90.0	103	47	78.0	84	34	62.3	85	37	59.0	115	31	73.6
1980	113	65	91.1	110	63	86.6	110	48	76.6	94	38	64.9	85	40	61.4	116	38	74.5
1981	116	69	93.9	107	66	88.5	96	48	73.0	90	44	66.5	81	36	59.8	116	36	75.3
1982	113	73	92.4	116	56	84.5	95	50	73.8	84	43	61.9	75	35	55.4	116	33	72.6
1983	111	69	89.8	112	64	89.4	96	61	77.5	90	39	64.9	76	36	58.8	114	35	74.0
1984	116	76	91.8	112	67	89.9	102	49	72.8	89	38	63.3	71	34	54.6	116	34	74.1
1985	117	68	92.1	107	58	80.9	100	54	74.3	88	36	61.2	80	33	57.1	117	28	73.2
1986	112	74	93.7	112	58	82.0	97	54	73.5	87	42	65.0	77	33	57.0	115	33	74.9
1987	115	66	91.2	110	62	86.7	106	56	79.4	84	41	63.6	77	28	53.4	115	28	73.9
1988	109	67	90.7	109	58	85.1	105	59	80.1	96	40	64.7	83	30	55.9	111	30	73.8
1989	110	67	89.4	111	56	85.9	99	46	74.5	90	37	64.3	81	34	56.4	114	30	74.2
1990	109	67	89.0	112	65	86.5	99	50	75.4	87	36	63.5	77	21	51.5	117	21	73.0
1991	109	71	90.9	108	63	87.1	107	43	79.8	93	39	63.8	75	33	56.0	112	31	72.8
1992	113	64	92.0	107	68	88.0	103	57	76.6	87	36	60.3	70	31	51.4	114	31	73.2
1993	118	66	90.3	112	57	85.7	105	53	76.8	87	36	61.1	76	33	54.9	118	29	73.2
1994	112	77	93.7	109	61	87.7	97	47	74.4	89	33	56.7	76	31	53.4	115	31	73.1
1995	114	69	94.0	112	62	90.3	101	50	76.3	91	45	68.4	80	37	57.7	121	37	74.0
1996	112	68	91.8	107	63	84.2	106	41	74.0	87	41	63.3	78	30	56.0	115	30	73.9
1997	114	75	92.6	110	65	87.8	103	47	73.4	94	43	64.9	76	32	53.2	114	32	73.2
1998	115	67	92.6	107	59	84.8	97	45	72.1	83	40	61.6	81	28	54.4	116	28	71.4
1999	111	66	89.9	109	62	86.0	104	50	77.1	90	41	66.5	78	37	56.9	111	36	72.4
2000	112	72	92.7	111	62	86.5	100	51	73.6	79	37	58.9	81	37	58.7	113	35	74.4
Average	112.5	67.2	90.8	110.0	59.5	85.4	101.5	48.2	74.6	88.8	37.3	62.7	79.9	31.8	55.5	115.2	28.8	72.7

WATER INFORMATION 2000

VIII. AGRICULTURAL CROP STATUS

IMPERIAL IRRIGATION DISTRICT

ANNUAL INVENTORY OF AREAS RECEIVING WATER

YEARS 2000,1999, 1998

I CROP SURVEY

GARDEN CROPS	ACRES 2000	1999	1998
ARTICHOKE	234	160	199
ARTICHOKE (SEED)	6	31	30
BEANS	0	150	23
BLACKEYED PEAS	10	80	0
BROCCOLI	10,916	12,305	9,589
BROCCOLI (SEED)	100	91	156
CABBAGE	877	1,284	1,126
CABBAGE, CHINESE	165	157	0
CARROTS	18,167	16,995	16,416
CARROTS (SEED)	0	70	0
CAULIFLOWER	3,642	3,960	3,313
CAULIFLOWER (SEED)	71	15	66
CELERY	105	98	65
CELERY (SEED)	0	20	12
CILANTRO	0	60	0
COLLARDS	0	38	6
CUCUMBERS	29	57	18
EAR CORN	5,921	6,790	6,088
EGGPLANT	0	7	5
ENDIVE	0	51	25
FENNEL	2	2	0
FLOWERS	317	279	116
FLOWERS (SEED)	6	26	48
GARBANZO BEANS	108	1,057	51
GARLIC	76	308	104
HERBS, MIXED	20	60	2
HERBS, MIXED (SEED)	0	2	0
KALE	0	65	96
LETTUCE	15,261	17,842	14,752
LETTUCE (SEED)	0	0	58
LETTUCE, BUTTER	0	25	0
LETTUCE, GREEN	92	0	108
LETTUCE, ROMAINE	643	1,969	1,505
LETTUCE, MIXED	2,093	2,722	2,681
MELONS			
CANTALOUPES, FALL	847	1,380	1,871
CANTALOUPES, SPRING	10,423	12,650	12,216
CRENSHAW, FALL	22	0	0
HONEYDEW, FALL	354	320	406
HONEYDEW, SPRING	1,067	1,139	457
KAVA	0	0	140
MIXED, FALL	182	319	12
MIXED, SPRING	531	504	438
WATERMELONS	1,143	2,158	1,635
MUSTARD	170	30	134
MUSTARD (SEED)	0	12	13
OKRA	230	30	30
OKRA (SEED)	0	25	0
ONIONS	12,377	11,526	9,757
ONIONS (SEED)	3,812	3,541	2,256
PARSLEY	0	60	0
PARSLEY (SEED)	0	74	0
PARSNIPS	48	14	44
PEPPERS, BELL	361	429	370
PEPPERS, HOT	0	0	29
POTATOES	2,775	3,159	2,622
RADISHES	9	18	155
RADISHES (SEED)	0	0	17
RAPINI	1,505	1,323	1,150
RHUBARB	0	5	0
RUTABAGAS	0	5	0
SPINACH	485	1,229	950
SPINACH, CHINESE	0	0	30
SQUASH	108	191	114
SQUASH (SEED)	54	155	33
SWEET BASIL	103	0	9
SWISS CHARD	0	20	5
SWISS CHARD (SEED)	0	1	0
TOMATOES, FALL	0	0	0
TOMATOES, SPRING	798	2,024	655
TURNIPS	155	168	141
VEGETABLES, MIXED	1,961	2,162	1,711
VEGETABLES, MIXED (SEED)	31	66	0
WATERLILIES	22	30	30
TOTAL GARDEN CROPS	98,434	111,543	94,088

FIELD CROPS	ACRES 2000	1999	1998
ALFALFA, FLAT	105,705	103,944	120,675
ALFALFA, ROW	72,149	64,327	53,688
ALFALFA (SEED)	18,223	24,362	19,781
ALICIA GRASS	1	1	1
BAMBOO	43	109	94
BARLEY	109	868	337
BERMUDAGRASS	41,918	31,731	31,774
BERMUDAGRASS (SEED)	22,185	23,448	21,865
BUFFELGRASS	67	37	37
CLOVER	0	16	0
COTTON	5,641	7,131	4,640
DUNALIELLA	0	25	25
FIELD CORN	824	844	579
FLAX	0	55	12
GRASS, MIXED	602	10	74
HEMP	0	94	94
KENAF	0	0	65
KLEINGRASS	6,998	3,113	1,623
LEMONGRASS	5	5	5
OATS	850	212	2,411
RAPE	621	3,034	5,098
RED BEETS	6	16	10
RICE	0	140	0
RYEGRASS	2,860	3,034	4,968
SORGHUM GRAIN	205	82	40
SORGHUM SILAGE	0	75	193
SPIRULINA ALGAE	70	70	70
SUDANGRASS	53,446	62,286	66,568
SUDANGRASS (SEED)	148	595	391
SUGARBEETS	31,475	33,997	34,258
SUGARCANE	189	133	80
WHEAT	49,868	42,464	80,184
TOTAL FIELD CROPS	414,208	406,258	449,640

PERMANENT CROPS	ACRES 2000	1999	1998
ASPARAGUS	5,922	6,166	5,574
CITRUS			
GRAPEFRUIT	1,384	1,412	1,337
LEMONS	2,357	2,094	1,914
MIXED	872	1,004	944
ORANGES	927	947	840
TANGERINES	692	712	692
DATES	93	93	98
DUCK PONDS (FEED)	10,025	9,105	8,979
EUCALYPTUS	13	14	14
FISH FARMS	1,293	1,293	1,293
FRUIT, MIXED	5	5	10
GRAPES	4	4	0
GUAR BEANS	0	0	153
JOJOBA	2	2	2
MANGOS	150	150	125
NURSERY	30	30	30
ORNAMENTAL TREES	15	15	15
PALMS	78	78	78
PASTURE, PERMANENT	546	701	684
PEACHES	7	7	7
PECANS	17	17	17
POMEGRANATES	2	2	0
TOTAL PERMANENT CROPS	24,434	23,851	22,806
TOTAL ACRES OF CROPS	537,076	541,652	566,534

NOTE: CROPS ARE LISTED FOR THE YEAR IN WHICH THEY ARE PREDOMINATELY HARVESTED.

II ACCOUNT SUMMARY

	2000		1999		1998	
Number of Farm Accounts	6,002		6,257		6,290	
Number of Owner-Operated Farm Accounts	2,519	42.0%	2,799	44.7%	2,760	43.9%
Number of Tenant-Operated Farm Accounts	3,483	58.0%	3,458	55.3%	3,530	56.1%
Average Acreage of Farm Account	79.81		76.61		76.20	

III SUMMARY OF AREA SERVED

	ACRES		
	2000	1999	1998
FIELD CROPS	414,208	406,258	449,640
GARDEN CROPS	98,434	111,543	94,088
PERMANENT CROPS	24,434	23,851	22,806
TOTAL ACRES OF CROPS	**537,076**	**541,652**	**566,534**
TOTAL MULTIPLE CROPPED ACRES	75,562	82,090	105,473
TOTAL NET ACRES IN CROPS	**461,514**	**459,562**	**461,061**
AREA BEING RECLAIMED: LEACHED	623	2,640	190
NET AREA IRRIGATED	**462,137**	**462,202**	**461,251**
AREA FARMABLE BUT NOT FARMED DURING YEAR (FALLOWED LAND)	16,863	17,125	18,076
TOTAL AREA FARMABLE	**479,000**	**479,327**	**479,327**
AREA OF FARMS IN HOMES, FEED LOTS, CORRALS, COTTON GINS, EXPERIMENTAL FARMS, AND INDUSTRIAL AREAS	16,346	16,019	16,019
AREA IN CITES, TOWNS, AIRPORTS, CEMETERIES, FAIRGROUNDS, GOLF COURSES, RECREATIONAL, PARKS, LAKES & RURAL SCHOOLS	26,013	26,013	26,013
TOTAL AREA RECEIVING WATER	**521,359**	**521,359**	**521,359**
AREA IN DRAINS, CANALS, RESERVOIRS, RIVERS, RAILROADS, AND ROADS	73,650	73,650	73,650
AREA BELOW -230 SALTON SEA RESERVE BOUNDARY & AREA COVERED BY SALTON SEA, LESS AREA RECEIVING WATER	40,150	40,150	40,150
AREA IN IMPERIAL UNIT NOT ENTITLED TO WATER	63,933	63,933	63,933
UNDEVELOPED AREA OF IMPERIAL, WEST MESA, EAST MESA, AND PILOT KNOB UNITS	277,629	277,629	277,629
TOTAL ACREAGE INCLUDED - ALL UNITS	**976,721**	**976,721**	**976,721**
* ACREAGE NOT INCLUDED - ALL UNITS	84,916	84,916	84,916
TOTAL GROSS ACREAGE WITHIN DISTRICT BOUNDARIES	**1,061,637**	**1,061,637**	**1,061,637**

* Acreage within District boundaries that is not included in District.

IMPERIAL IRRIGATION DISTRICT
WATER DEPARTMENT
HISTORICAL SUMMARY - WATER, WEATHER, and CROP DATA

CALENDER YEAR	NET IID ACRES IRRIGATED	IID DISCHARGE BELOW DROP 1 (AC-FT)	TOTAL OPERATIONAL LOSS, CANAL LOSS AND UNACCOUNTED (AC-FT)	DELIVERED TO USERS (AC-FT)	DELIVERED WATER per NET IID IRRIGATED ACRES (AC-FT/ACRE)	IMPERIAL STATION RAINFALL (FT)	DELIVERED WATER per IID IRRIGATED ACRES plus RAINFALL (AC-FT/ACRE)	IMPERIAL STATION PAN EVAPORATION (IN)	MEAN ANNUAL TEMPERATURE (°F)	DATES OF FREEZING TEMPERATURE (32°F)		PERCENTAGE OF AREA IN DIFFERENT CROPS			
										JAN 1 - JULY 15	JULY 16 - DEC 31	CEREALS and SEED	HAY and FORAGE	COTTON	VEGETABLES, MISCELLANEOUS and PERMANENT CROPS
1971	441,783	2,883,960	349,361	2,534,599	5.74	0.11	5.85		71.7	Jan 4, 5, 6, 7, 8, 9, 10; Feb 27; Mar 3	Dec 10, 12, 15	32.96	34.96	5.94	26.14
1972	444,393	2,846,613	315,270	2,531,343	5.70	0.18	5.88		73.0	Jan 5, 6, 8; Feb 3	Dec 12, 15, 31	32.58	34.41	5.45	27.56
1973	444,309	2,956,013	285,700	2,670,313	6.01	0.11	6.12		72.8	Jan 6, 7, 8	none	30.90	34.51	6.57	28.02
1974	450,038	3,072,327	295,106	2,777,221	6.17	0.17	6.34		73.6	Jan 3	Dec 24, 26, 27, 28	26.52	30.65	13.74	29.09
1975	456,174	3,001,207	297,501	2,703,706	5.93	0.10	6.03	113.31	72.1	Jan 2, 4	none	33.23	30.34	7.34	29.09
1976	458,131	2,783,630	268,365	2,515,265	5.49	0.42	5.91	106.96	72.9	Jan 1, 2, 3	none	28.82	32.63	10.90	27.65
1977	459,433	2,693,030	238,280	2,454,750	5.34	0.43	5.77	111.07	74.1	none	none	15.07	34.11	24.44	26.38
1978	451,304	2,671,798	231,097	2,440,701	5.41	0.36	5.77	106.08	74.3	none	Dec 8, 9	30.00	35.77	10.89	23.34
1979	458,894	2,803,166	232,310	2,570,856	5.60	0.20	5.80	101.31	73.6	Jan 2	none	24.09	41.37	15.66	18.88
1980	459,662	2,769,495	249,800	2,519,695	5.48	0.36	5.84	103.96	74.5	none	none	26.96	36.01	14.17	22.86
1981	463,275	2,769,112	269,351	2,499,761	5.40	0.31	5.71	103.84	75.3	none	none	29.93	33.51	13.33	23.23
1982	464,391	2,515,637	267,402	2,248,235	4.84	0.40	5.24	100.61	72.6	none	none	32.27	36.96	7.10	23.67
1983	445,055	2,416,885	236,642	2,180,243	4.90	0.48	5.38	98.98	74.0	none	none	25.14	44.19	3.60	27.07
1984	447,115	2,647,285	260,957	2,386,328	5.34	0.29	5.63	99.91	74.1	none	none	9.79	52.08	8.47	29.66
1985	456,794	2,616,876	281,579	2,335,297	5.11	0.31	5.42	102.21	73.2	Feb 1, 5	none	20.61	45.04	4.07	30.28
1986	457,883	2,576,012	239,429	2,336,583	5.10	0.31	5.41	103.46	74.9	none	none	22.46	44.20	3.70	29.64
1987	454,751	2,666,891	280,771	2,386,120	5.25	0.21	5.46	106.09	73.9	Jan 16, 17	Dec 15, 26, 27, 28	15.63	45.56	4.57	34.24
1988	459,998	2,885,053	340,850	2,544,203	5.53	0.11	5.64	105.02	73.8	Jan 21	Dec 27, 28, 29, 30, 31	14.49	46.18	4.17	35.16
1989	462,956	2,942,429	311,382	2,631,047	5.68	0.06	5.74	107.39	74.2	Jan 13, 14; Feb 6, 7	none	21.88	43.16	1.81	33.15
1990	467,861	2,974,647	293,735	2,680,912	5.73	0.12	5.85	101.13	73.0	Jan 4; Feb 15, 16	Dec 22, 23, 24, 25, 26, 27, 30, 31	14.81	45.91	2.03	37.25
1991	467,244	2,813,019	292,859	2,520,160	5.39	0.38	5.77	98.82	72.8	Jan 30	none	12.84	52.46	1.72	32.98
1992	458,893	2,481,845	303,075	2,178,770	4.75	0.44	5.19	96.70	73.2	none	Dec 20, 21	18.95	50.86	0.80	29.39
1993	460,620	2,677,597	273,143	2,404,454	5.22	0.45	5.67	105.12	73.2	Jan 4	none	17.84	51.27	1.39	29.50
1994	457,788	2,984,067	331,281	2,652,786	5.79	0.25	6.04	99.44	73.1	none	Dec 11	16.03	54.20	1.27	28.50
1995	459,646	3,023,427	363,724	2,659,703	5.79	0.18	5.97	101.26	74.0	none	none	17.95	54.24	1.28	26.53
1996	460,003	3,123,596	329,718	2,793,878	6.07	0.07	6.14	114.62	73.9	none	Dec 20	26.45	46.51	0.82	26.22
1997	459,827	3,076,026	307,994	2,768,032	6.02	0.30	6.32	94.91	73.2	none	Dec 25, 26, 27	23.24	48.92	0.70	27.14
1998	460,109	3,030,695	319,974	2,710,721	5.89	0.27	6.16	94.04	71.4	none	Dec 22, 23, 24, 25	22.22	49.78	0.82	27.18
1999	461,060	3,051,403	379,844	2,671,559	5.79	0.17	5.96	99.57	72.4	none	none	17.87	49.72	1.22	31.19
2000	460,995	3,051,456	357,008	2,694,448	5.84	0.08	5.92	96.64	74.4	none	none	17.81	52.99	1.05	28.15
30 YR Average	457,013	2,826,840	293,450	2,533,390	5.54	0.25	5.80	102.86	73.4			22.64	43.08	5.97	28.30