1959 Annual Report

IMPERIAL IRRIGATION DISTRICT

Annual Report

of the

PRESIDENT

of

The Board Of Directors

IMPERIAL IRRIGATION DISTRICT

For the Calendar Year Ended
December 31, 1959

CONTENTS

Board of Directors

BOARD OF DIRECTORS
(left to right)

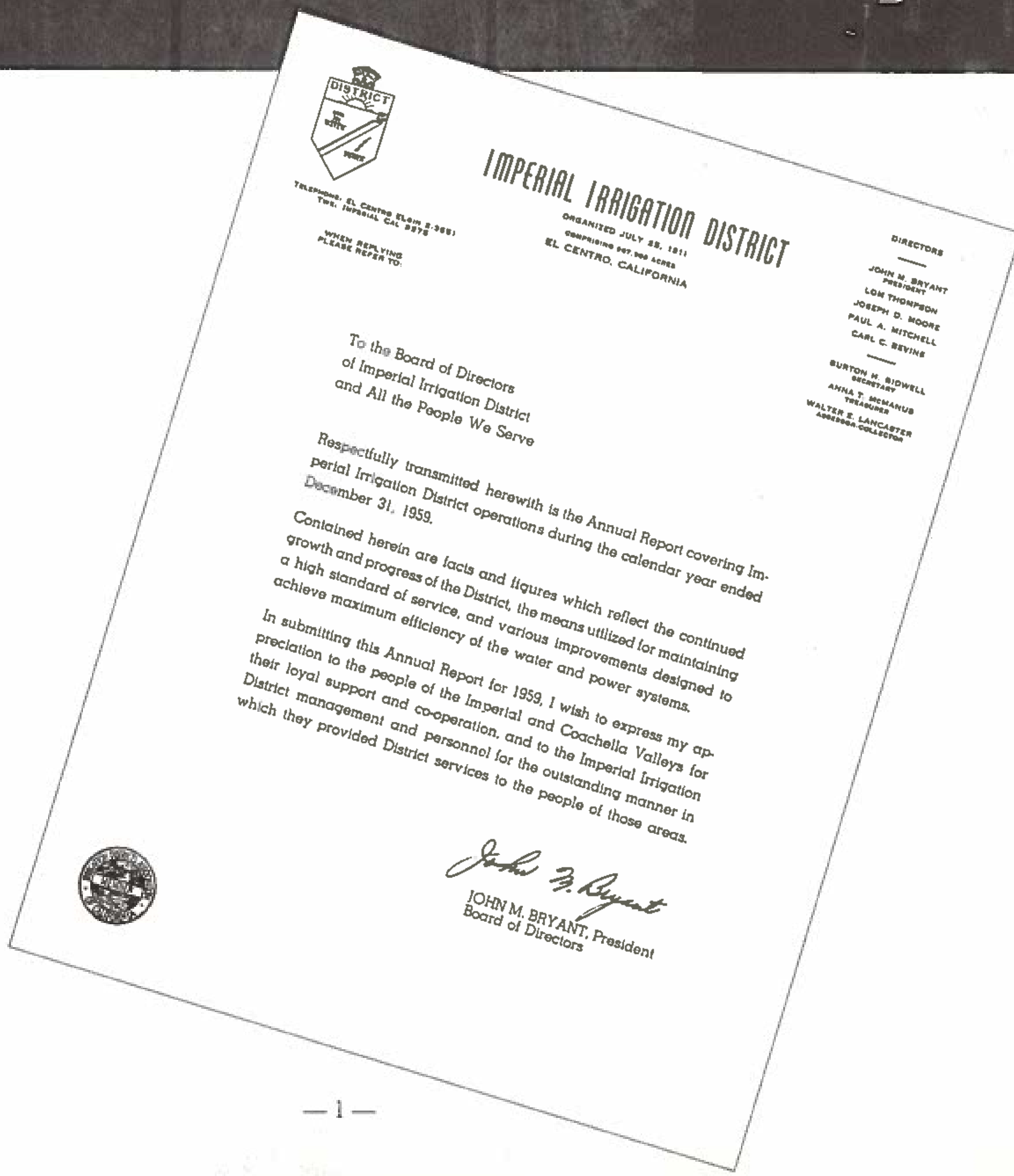
LOM THOMPSON
Division 1

JOE D. MOORE
Division 2

JOHN M. BRYANT, President
Division 3

PAUL A. MITCHELL
Division 4

CARL C. BEVINS
Division 5



IMPERIAL IRRIGATION DISTRICT
ORGANIZED JULY 25, 1911
EL CENTRO, CALIFORNIA

WHEN REPLYING PLEASE REFER TO:

DIRECTORS
JOHN M. BRYANT, PRESIDENT
LOM THOMPSON
JOSEPH D. MOORE
PAUL A. MITCHELL
CARL C. BEVINS

BURTON H. BIDWELL, SECRETARY
ANNA T. MCMANUS, TREASURER
WALTER E. LANCASTER, ASSESSOR-COLLECTOR

To the Board of Directors
of Imperial Irrigation District
and All the People We Serve

Respectfully transmitted herewith is the Annual Report covering Imperial Irrigation District operations during the calendar year ended December 31, 1959.

Contained herein are facts and figures which reflect the continued growth and progress of the District, the means utilized for maintaining a high standard of service, and various improvements designed to achieve maximum efficiency of the water and power systems.

In submitting this Annual Report for 1959, I wish to express my appreciation to the people of the Imperial and Coachella Valleys for their loyal support and co-operation, and to the Imperial Irrigation District management and personnel for the outstanding manner in which they provided District services to the people of those areas.

John M. Bryant

JOHN M. BRYANT, President
Board of Directors

President's Report

JOHN M. BRYANT
President Board of Directors

Newly-elected Directors Joseph D. Moore of Division 2 and Paul A. Mitchell of Division 4 were seated on the Board of Directors at the reorganization meeting held March 10.

District management consolidated several services by co-ordinating departmental activities. Based on recommendations proposed in the 1958 report prepared by management consultants Booz, Allen and Hamilton, this consolidation resulted in a reduction of forty-two employees.

The District continued to maintain a sound financial position, with all operations conducted on a cash basis. Retirement of $1,468,000 in bonds was accomplished this year, and total expenditures of $13,532,633 for water and power operations were $855,883 less than the estimated expenses in the budget approved by the Board of Directors. The assessed value of land within District boundaries amounted to $49,484,622 for the 1958-59 assessment year, as compared to the 1948-49 valuation of $41,534,362.

A study of possible measures to be applied in erosion control of the Alamo River resulted in construction of Drop No. 2 and indicated a need for additional drops to be installed in the future.

During 1959, landowners installed 531.11 miles of drainage tile and 126.9 miles of concrete lining in lateral canals and head ditches. District participation in the concrete lining program accounted for 4.04 miles and is limited to lining of the terminal portion of certain irrigation laterals. These programs of drainage and lining increased land productivity by reducing salt accumulations and seepage losses. District power units generated a total of 623,791,096 kilowatt-hours during 1959, with a peak load for the year of 143,600 kilowatts which occurred on July 23.

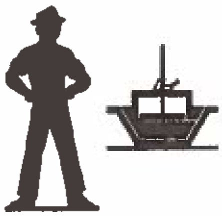
In anticipation of future demands, a study was initiated to determine the feasibility of building five low-head hydro-electric plants at various sites on the main canal system. Combined annual capacity of these plants was estimated to be 17,420,000 kilowatt-hours, and the project was extended into 1960.

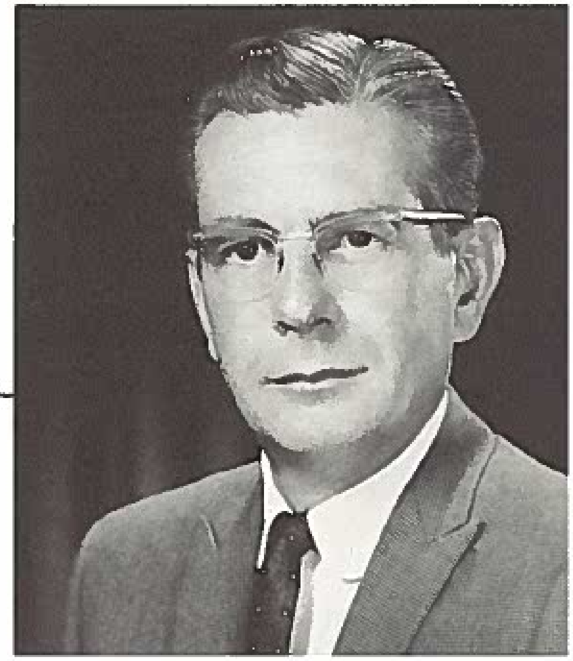
No recommendation had been submitted to the United States Supreme Court by the Honorable Simon H. Rifkind, Special Master, regarding the case of Arizona v. California.

In August, George E. Tank resigned as General Manager of Imperial Irrigation District to accept a position with an engineering company developing a project in Jordan. Mr. Robert F. Carter, Operations Services Manager, was appointed as General Manager of the District by the Board of Directors.

John M. Bryant

General Manager's Statement





ROBERT F. CARTER
General Manager

This Annual Report constitutes a record of objectives achieved by Imperial Irrigation District during 1959, and includes significant contributions made by the operating departments in their accomplishment.

The success of Imperial Irrigation District in performing its basic function, that of providing an adequate supply of water and power to the people of Imperial and Coachella Valleys, lies in the co-ordinated operations of the Water, Power, Operations Services, Finance and Accounting, and Personnel Departments. These departments, dedicated in purpose and unified in effort, employ a sound business program of development and production. By so doing they are able to meet increased demands as they occur and to maintain District services at a fair and reasonable cost for the benefit of the ultimate consumer . . . the people who own Imperial Irrigation District.

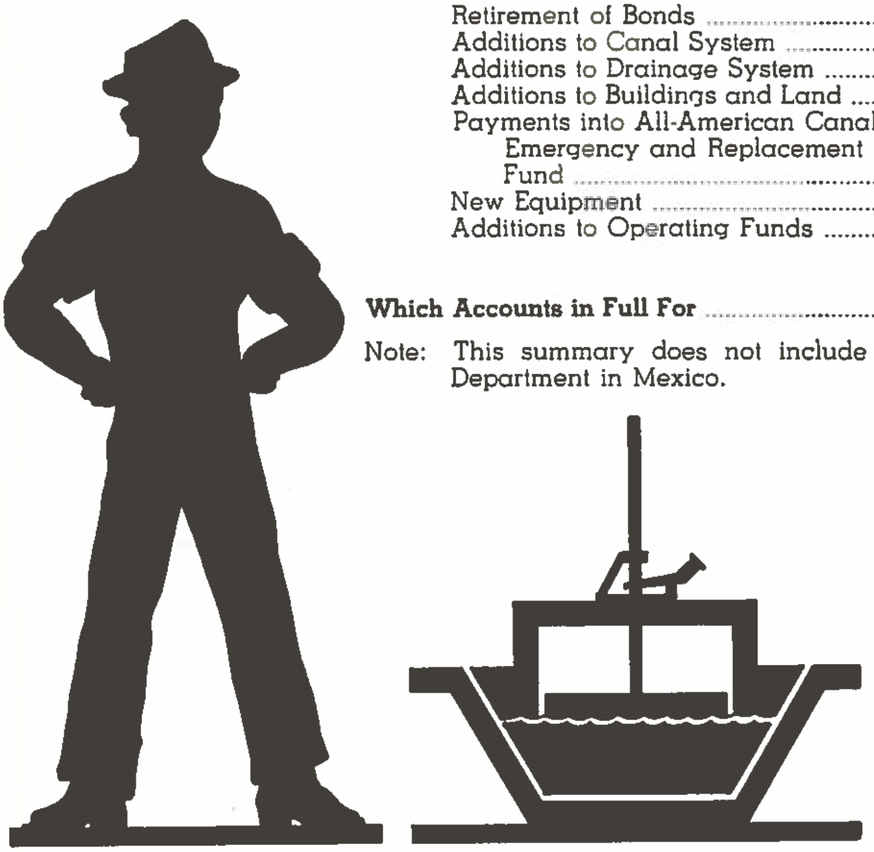
I would like to express my sincere appreciation to the employees of the District for their continued efforts in striving to improve the District's operations and, in particular, to our Board of Directors for their cooperation, understanding, and development of over-all policies which have made our continued progress possible.

R. F. Carter

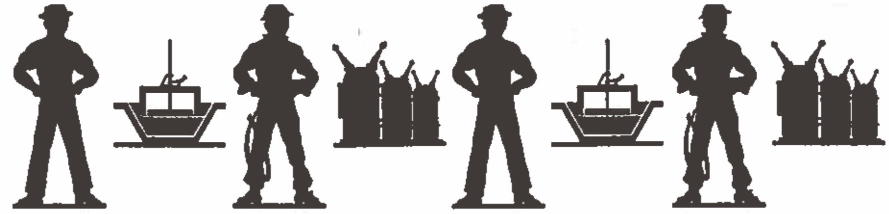
WATER

The District's Water Department Earned		**$5,952,404**
From: Assessments, Penalties and Costs	$1,502,425	
Sales and Rentals of Land Held Under Assessment Deeds	11,590	
Interest on Redemption of Delinquent Assessments	4,306	
Water Deliveries, Gate and Pipe Service Charges	4,122,644	
Interest on Reserves	93,945	
Rental of Buildings and Equipment	74,451	
Other Sources	143,043	
Which Was Used or Set Aside For:		
Operating Expenses	$3,287,943	
Interest on Bonds	273,734	
Taxes	1,400	
Accounting for Operating Expenses and Income Deduction of	$3,563,077	
Leaving a Net Income of	2,389,327	
Which Was Used For:		
Retirement of Bonds	$ 595,000	
Additions to Canal System	693,430	
Additions to Drainage System	413,536	
Additions to Buildings and Land	32,393	
Payments into All-American Canal Emergency and Replacement Fund	89,007	
New Equipment	250,258	
Additions to Operating Funds	315,703	
	$2,389,327	
Which Accounts in Full For		**$5,952,404**

Note: This summary does not include operations of the Water Department in Mexico.

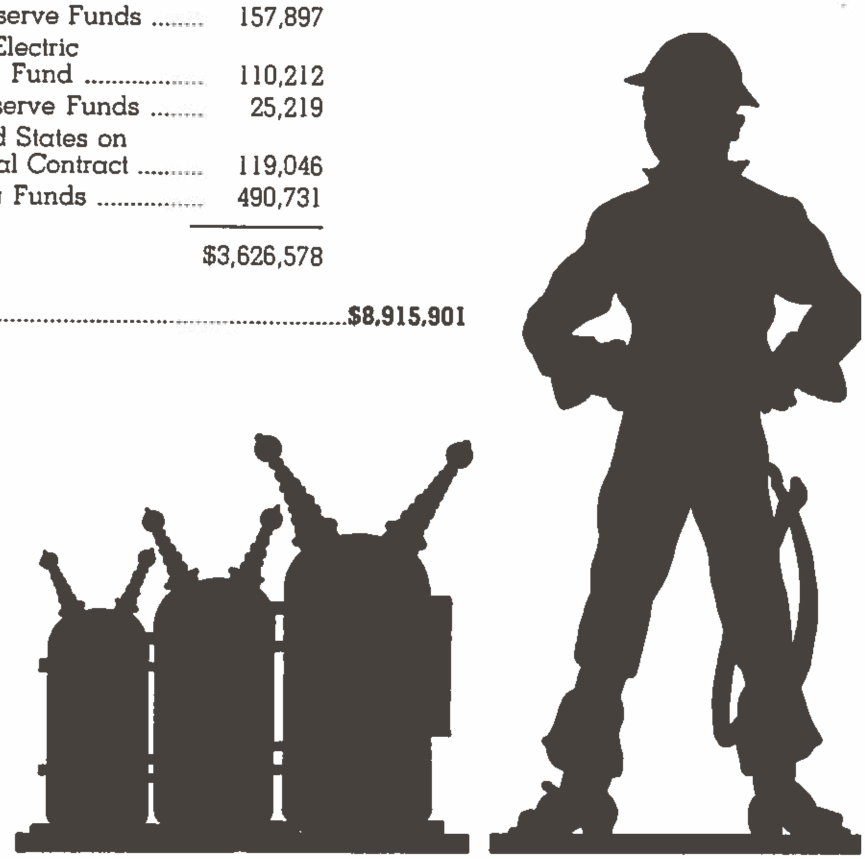


at a Glance



POWER

The District's Power Department Earned		**$8,915,901**
From: Power Sales	$8,665,607	
Interest on Reserves	188,103	
Rental of Electric Property	52,304	
Other Sources	9,887	
Which Was Used or Set Aside For:		
Operating Expenses	$4,325,396	
Interest on Bonds	918,745	
Lease of Power Rights	35,903	
Taxes	9,279	
Accounting for Operating Expenses and Income Deductions of	$5,289,323	
Leaving a Net Income of	3,626,578	
Which Was Used For:		
Retirement of Electric Revenue Bonds	$ 910,000	
Additions to Plant	1,813,473	
Payment into Bond Reserve Funds	157,897	
Payment into Special Electric Plant Construction Fund	110,212	
Additions to Other Reserve Funds	25,219	
Deposit with the United States on All-American Canal Contract	119,046	
Additions to Operating Funds	490,731	
	$3,626,578	
Which Accounts in Full For		**$8,915,901**



Treasurer's Office

ANNA T. McMANUS
Treasurer

The Treasurer of Imperial Irrigation District, elected by the people within District boundaries, is charged with the responsibility of safeguarding all District funds and, in compliance with the provisions of the Water Code of the State of California, is obligated to furnish an Indemnity Bond guaranteeing personal integrity and good faith in the handling of all District cash assets. The amount of the bond is determined by the Board of Directors.

The total annual income from the sale of water and power, assessment collections, and all other sources flows into the Treasurer's Office and is retained in specified funds until such time as legal expenditure is approved by the Board of Directors. Total income of the District during 1959 amounted to approximately $16,000,000 of which over $14,000,000 was expended for payment of bond principal, bond interest, District payrolls and expense checks and Compania payrolls and expense checks.

During this year, payments amounting to $1,468,000 substantially reduced the bonded indebtedness of the District to a new low of $37,933,000 comprised of $7,890,000 in general obligation bonds and $30,103,000 in electric revenue bonds.

Sufficient funds were set aside to meet the annual budget requirements, such as water and power department operations, payments on bonds, and coverage of various reserve and sinking funds, as required by law. Cash funds not required for meeting current expenses were placed in interest-bearing accounts with banks located in Imperial and Coachella Valleys. Those accounts, combined with government bonds purchased in previous years with reserve funds, provided the District with a total earned-interest income of $255,556.

We, of the Treasurer's Office, wish to express our gratitude to the people of Imperial Irrigation District, the Board of Directors, and the personnel of the various departments within the District for their excellent co-operation through the year 1959.

Assessor-Collector's Office

WALTER E. LANCASTER
Assessor-Collector

The total assessed valuation of all land within Imperial Irrigation District amounted to $49,480,302 for the 1958-59 assessment year, as compared to $49,250,368 for 1957-58. The rise of $229,934 in assessed valuation for 1958-59 occurred through return of tax deed land to the assessment rolls and the increased value of reclaimed land. There was no general increase in assessed valuation.

By June 20, 1959, the date after which payments for the 1958-59 assessment year became delinquent, $1,443,724, or 96.73 per cent of the total assessment had been paid, leaving $48,774 or 3.27 per cent, unpaid. (Delinquent gate charges are included in collections and unpaid balances.) This represents the smallest delinquency since organization of Imperial Irrigation District in 1911.

Noticeable improvement of operations within the Assessor-Collector's Office was accomplished by adoption of new procedures, and other means of increasing office efficiency were taken under consideration, including the addition of an electric computing system and an Address-O-Graph machine.

On September 1, 1959, the Board of Directors fixed the assessment rate for the 1958-1959 assessment year at $3.00 per $100 assessment valuation. This included the portion necessary to be raised by assessment to meet the Irrigation Budget of $5,613,916 for the 1959 calendar year. The assessment levy has remained unchanged since 1949-50. The aggregate assessed value of lands within the District, as equalized, was $49,480,302 as reflected by the assessment rolls for 1958. However, in deducting 15 per cent of the aggregate assessed value for anticipated delinquencies, as provided by Section 25801 of the Water Code of the State of California, there remained a net equalized assessed valuation of $42,058,256.70 of the lands concerned.

The amount to be raised by assessment for the 1958-59 assessment year was classified by the Board of Directors as follows:

Redemption Fund: 15.46 mills on the dollar to raise $650,000 for payment of interest on bonds and to provide for their retirement.

Drainage Fund: 3.57 mills on the dollar to raise $150,000 for necessary improvements to, and extensions of the District's drainage system.

Operation and Maintenance: 10.97 mills on the dollar to raise $461,379.07. This amount, combined with other revenues of the District, will provide funds to meet the estimated current expenses of the District.

Colorado River

M. J. DOWD

Executive Officer to the Board of Directors and member of the Colorado River Board

By State law, the Colorado River Board of California is charged with the duty and responsibility of protecting the interests and rights of California and its agencies in and to the water of the Colorado River. With the amazing growth and population increase taking place in Southern California and the development in progress and proposed in the other Basin States, the water of the Colorado becomes more valuable day by day and the work of the Board more important. So its activities, rather than slackening with the close of the trial of Arizona v. California in 1958, have increased during the year 1959.

Arizona v. California

During the first half of the year, the staff, in collaboration with the State Attorney General's office and the engineers and attorneys of the six California agencies involved in the pending suit of Arizona v. California, was occupied in the preparation of findings of fact, conclusions of law, and a proposed decree, which were filed with the Special Master on April 1. Responses to the findings and conclusions proposed by the other parties were filed on June 1. Rebuttal briefs were filed on June 30 by all parties except Arizona. For the remainder of the year, activity in this field was practically at a standstill, awaiting a draft of the report of the Special Master to the Court. When this is received, comments will be submitted to and considered by the Special Master, following which he will file his final report and recommendations with the Court.

Colorado River Storage Project

The staff made studies of the financial and economic aspects of the Colorado River Storage Project, based on Bureau of Reclamation reports, and prepared an independent repayment analysis which indicated that the required repayment period might be somewhat longer than that shown by the Bureau. This analysis was transmitted by a California Congressman to the Controller General for comment, who submitted it, with the Bureau reports, to the Federal Power Commission for review. The matter is still under consideration.

The Lower Basin Engineering Group continued its studies to develop Glen Canyon Dam filling criteria and of the effect such would have on downstream water use and power production. In August, its report was submitted to the Secretary of the Interior for his consideration in formulating the official principles and regulations. The Upper Basin Engineering Group made similar studies and submitted its report to the Secretary in September. A number of joint meetings of the Lower and Upper Basin Engineering Groups with the Bureau of Reclamation were held during the year, at which the studies of the two groups were explained and analyzed. It is hoped to have a report on this matter from the Secretary of the Interior early in 1960.

In March, specifications for handling the River during construction of Glen Canyon Dam, which had been revised to meet objections previously raised by the Board, were received from the Bureau of Reclamation.

Fryingpan-Arkansas Project

Several bills to authorize the Fryingpan-Arkansas Project were again introduced in Congress rather late in the session, but did not come to hearing. The position of the Board remained the same as in previous years; i.e., that unless certain amendments considered essential for protection of California's rights and interests were incorporated in the legislation, the Board would have to oppose it. The new bills are being analyzed by the Board's staff to determine differences from previous bills.

Navajo and San Juan - Chama Projects

Legislation to authorize the Navajo Irrigation Project and San Juan-Chama Project in New Mexico was again introduced in Congress early in the session, and hearings on the Senate Bill, S. 72, were held before the Senate Interior and Insular Affairs Committee in March. California's

Board Activities

official views and proposed amendments were submitted to the Committee through Senator Kuchel, but none of the amendments was accepted. The bill was passed by the Senate on May 19, after adoption of only one of California's proposed amendments, and this one was offered by Senator Hayden of Arizona. The bill did not come before the House Committee during this session.

Bridge Canyon Power Project

The application of the Arizona Power Authority, filed June 25, 1958 with the Federal Power Commission, for a license to build Bridge Canyon and Marble Canyon power projects continued before the Commission during the year. Hearings were not held, as the Department of Water and Power of the City of Los Angeles indicated that it was preparing to file a similar application for a license to construct the Bridge Canyon Project. Also, later in the year, Arizona Power Authority filed an amended application with the Commission changing the plans for the project in several respects.

In September, just prior to the adjournment of Congress, a bill sponsored by the Department of Water and Power—H. R. 9289—was introduced by Congressman Lipscomb to authorize construction of the Bridge Canyon Power Project by the Federal Government with funds to be advanced by power agencies in Arizona, California, and Nevada desiring power from the project. The Colorado River Board of California is in favor of this method for the construction of all additional power developments on the Colorado River between Glen Canyon Dam and Hoover Dam.

It is assumed that the Federal Power Commission will hold a joint hearing on the applications of both the Arizona Power Authority and the Department of Water and Power, and it is expetced that the Board will take an active part in this hearing to protect the interests of the State.

Comprehensive studies of the project are being made by the Board's staff.

Miscellaneous

The Board requested the Secretary of the Interior to delay, at least until a decision is had in Arizona v. California, the execution of a domestic water delivery contract with the City of Yuma calling for delivery of a maximum of 50,000 acre-feet per annum (Yuma's current use is 7,500 acre-feet annually). The Department of the Interior announced in October that the contract had been approved as to form, and informal hearings were held in Phoenix, in November, at which certain features of the contract were opposed by the Arizona Interstate Stream Commission and the Central Arizona Project Association.

The Board continued its efforts to induce the Department of the Interior to take action to stop the illegal use of Colorado River water by "squatters" on Federal lands along the lower River. On June 9, the Secretary of the Interior announced that he had requested the Department of Justice to file, as tests, five eviction suits against trespassers on Federal lands along the lower River. The House Interior Subcommittee held a hearing on this problem in Phoenix on November 7, which was attended by the Board's Chief Engineer.

The Board brought to the attention of the Secretary of the Interior the serious need for the accumulation of more complete hydrologic data on the lower River. The Secretary acknowledged the existence of such a need and turned the matter over to the Pacific Southwest Field Committee, which met with representatives of agencies concerned to work out the details of an investigation.

A conference was held in Salt Lake City in February, attended by officials of the U. S. Geological Survey and the Bureau of Reclamation and representatives of the seven Basin States, at which general principles for a more extensive stream-gaging program in the Colorado River Basin were adopted.

Throughout the year, the Board enjoyed fine co-operation in all of its work from both the California Department of Water Resources and the Attorney General's office.

Legal Counsel

HARRY W. HORTON
Chief Counsel

The representation of Imperial Irrigation District and its Board of Directors in all legal actions and proceedings either for or against the District, or matters in which the District may have a legal interest, is performed by the Chief Counsel and two Assistant Counsels. These attorneys also provide legal assistance to the Board of Directors and to Department Managers acting in their official capacities. All contracts, acquisition of rights of way, purchases and sales of real and personal property, inclusions of territory within District boundaries, assessments, financing, and any other matters requiring consideration of the legal aspects involved are processed by the Chief Counsel and his assistants. With the exception of litigation in Court, the activities of the Legal Counsel are in a large part reflected in the operations of the other District departments.

Arizona vs. California

The trial of the case of Arizona vs. California, et al., held before the Special Master appointed by the United States Supreme Court, the Honorable S. F. Rifkind, was concluded in August of 1958. During 1959, the final Briefs and Arguments were prepared and presented to the Special Master, and the cause was submitted to him for decision and recommendation in June. The Special Master's decision is expected to be received sometime during 1960; however, receipt of the final decision by the United States Supreme Court is not expected until 1961.

Salton Sea Damage Claims

No new damage claims were filed by property owners of land adjacent to the Salton Sea during 1959, although the elevation of the Sea continued to rise slightly and development of the surrounding lands was maintained throughout the year. The only action pending at the close of the year, for damages attributable to the rise of the Salton Sea, concerned the claim filed by Desert Beach Corporation against both Imperial Irrigation District and Coachella Valley County Water District. The case was tried in February of this year and submitted for decision shortly thereafter. No decision was received by the end of 1959; however, a decision is expected in 1960. In the event of an adverse decision in this case, additional damage claims may be anticipated due to the continued rise in the elevation of the Salton Sea.

Miscellaneous Litigation

The wide variety of other litigation handled by the Legal Counsel during 1959 included quiet title actions, collection of delinquent power accounts, personal injury damage claims, claims for damage to crops and other property, bankruptcy claims concerning persons indebted to the District, and actions involving validity of flooding easements obtained on lands adjacent to the Salton Sea.

These actions were handled in various courts in Imperial and Riverside Counties, as well as in the Federal Courts. The Legal Counsel, in representing the District's interests, participated in a number of proceedings before several administrative tribunals of the State of California which included the Public Utilities Commission and the Department of Water Resources, in addition to those matters pending before administrative tribunals of the United States which included the Federal Power Commission, the Department of Interior, and the United States Land Office.

Assistant Counsels Reginald L. Knox, Jr., seated, and James H. Carter review evidence in the lengthy Arizona vs. California Colorado River Water Suit.

Public Information Office

WILLIAM J. STADLER
Public Information Officer

This office, organized in December, 1958, functions under the direction of the Public Information Officer. His responsibilities include dissemination of information concerning the District and its activities, editing and publishing monthly papers and special brochures, preparation and scheduling of advertising, coordinating public relations efforts with other District departments, representing the District at various meetings and hearings, maintaining close liaison with communication media, and incorporation of publicity techniques in promoting the best interests of the District.

Information Activities

During 1959, the Office of Public Information prepared and distributed general and special news releases covering all aspects of District operations to newspapers and radio and television stations in Imperial and Coachella Valleys. Additional information was provided to local residents, students, media personnel, and various agencies in response to requests for diversified facts and figures pertaining to the District and Imperial Valley. This data was also supplied to several free lance writers compiling feature stories for national publications. A kit comprised of a history of the District, maps of the water and power systems, general area maps, schematic drawings of water transportation, crop production reports, and a comprehensive fact sheet was developed to make basic information instantly available for distribution.

Community and Special Services

A Canal Safety campaign was among the programs introduced as a community service during 1959. The dangers involved by allowing children to play in the vicinity of canals and operating structures were widely publicized by means of special brochures and the enthusiastic co-operation of the schools and media of this area.

Public attention was focused on the importance of the District and its role in the development of this area by numerous personal appearances before civic groups, service organizations, school children, and agricultural gatherings. Documentary films and guided tours to District facilities and installations helped support this program

Promotional Activities

An aggressive advertising program was conducted throughout the year in co-operation with the Power Sales Section. Responsibility for layout, copywriting, and scheduling was fulfilled by the Public Information Office, and all media were fully utilized including a weekly 30-minute television program featuring the District Home Economist. Emphasis was placed on the heat pump, with strong attention given to other major electric appliances. Booth displays in both the Riverside County Fair and the California Mid-Winter Fair featured electric appliances and obvious advantages of adequate wiring for living better electrically.

This office was particularly active in co-operating with various local agencies and civic groups in the formulation of a well-rounded plan of economic development. Of primary significance was the contracting for numerous outdoor bulletins located strategically at major routes entering Imperial Valley. These bulletins carried a basic theme centered on the productivity of this area and the advantage of living here. Articles of leading industries in Imperial Valley, Salton Sea development operations, and development achievements in the Indio area were carried as feature stories in the monthly publication produced by this office, and pertinent facts for use in evaluating this area as a potential site for industry were provided to several organizations.

Foreign Training Activities

Co-operation in providing training to over 300 foreign technicians, engineers, and administrators sponsored by various Federal agencies was extended by the District. Those agencies included the Departments of Agriculture, Interior, and State in addition to the International Co-operation Administration and the Governmental Affairs Institute. These visitors were sent to Imperial Valley to study and observe the techniques of irrigation and agriculture as applied in Imperial Valley. Their program, arranged by the Public Information Office, included tours of District facilities and installations, visits to land being farmed, and discussions with experts in the fields of irrigation and agriculture. Every effort was made to provide them with the opportunity of accumulating practical knowledge which could be applied in similar areas throughout the world.

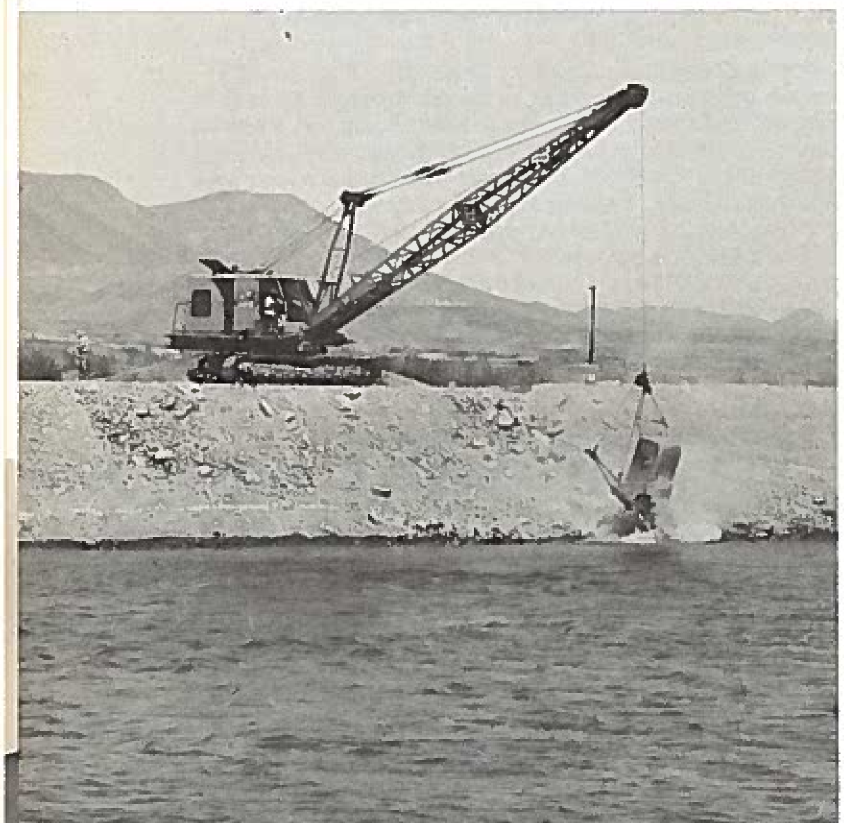
Water

OSCAR L. FUDGE
Department Manager

ALL-AMERICAN CANAL

General Comments:

The All-American Canal Section operates and maintains the All-American Canal headworks and desilting basins at Imperial Dam; the All-American Canal from the headworks to West Side Main Canal, a distance of 79.7 miles; the Coachella Branch of the All-American Canal from its turnout structure at Drop No. 1 on the All-American Canal to 6-A Check, a distance of 48.9 miles; and the New Briar Canal from its turnout at Drop No. 5 to the boundary bridge, a distance of 2.6 miles. It also maintains 36.6 miles of open drain channels and 9.3 miles of tile drains appurtenant to the All-American Canal.



View N.W. 38-B Dragline placing rock for riprap, right bank of All-American Canal below 120 Wash.

The River Division operates and maintains the headworks, desilting basins, and All-American Canal and appurtenant drains down to and including Pilot Knob Check. Western Division operates and maintains the remainder of the All-American Canal facilities.

The All-American Canal, with a maximum capacity of 15,155 cubic feet per second and a length of 80 miles, carries water scheduled for delivery not only to Imperial Valley, but to Yuma Project, Pilot Knob Hydro Plant, and Coachella Valley as well.

Total diversion through the headworks, located at Imperial Dam, amounted to 6,114,597 acre-feet during 1959 of which 154,943 acre-feet were used in desilting operations, leaving 5,959,654 acre-feet in the All-American Canal at Station 60. A maximum diversion at Station 60 of 12,800 second-feet was made on August 5. The minimum diversion for the year was 4,370 second-feet on November 2.

The District's order to the U.S. Bureau of Reclamation for water at All-American Canal Station 60 was the sum of irrigation water orders below Pilot Knob Check plus 8,000 second-feet for Pilot Knob Hydro Plant diversion to the river, up to the Contract's 13,000 second-feet limit, during the entire year. Total water available during the year for diversion through the Pilot Knob Hydro Plant was 1,037,544 acre-feet.

August was the high month in sludge discharge to the River with 27,774 tons of sediment. The sediment load decreased with lower flow in the River to a low of 425 tons in December. A total of 104,388 tons of sediment were returned to the River during the year as compared to 1,421,000 tons in 1958.

A major improvement in bank stability was achieved by sloping and applying a rock blanket for 1.3 miles of the All-American Canal right bank beginning at Station 70.

Major remodeling of two residences at Imperial Dam housing area by District forces was completed as the initial step in a plan to rehabilitate the remaining units during the next few years.

Maintenance operations included mechanical maintenance of structure equipment, electrical maintenance, sandblasting and painting of radial gates, cathodic protection, structural repairs, road maintenance, weed and brush control, sandhill control and erosion control. Mechanical maintenance required 19,994 man-hours; canal, drain, and other maintenance required 13,893 man-hours. Aquatic growth in drains did not require special treatment.

Channel Maintenance:

Draglines worked 1,351 hours, cleaning and sloping 45 miles of canal berm, cleaning drains, loading trucks, and placing rock for riprap. Angledozers worked 1,292 hours grading along canals, drains, sand drifts, and for quarry development. Motor graders were used 1,453 hours grading canal and drain maintenance roads. The water truck wetted 552 miles of canal and drain maintenance roads. Miscellaneous equipment, compressors, pumps, mixers, and generators were used 522 hours on canal, drain, and other work. A rented skip-loader worked 75 hours.

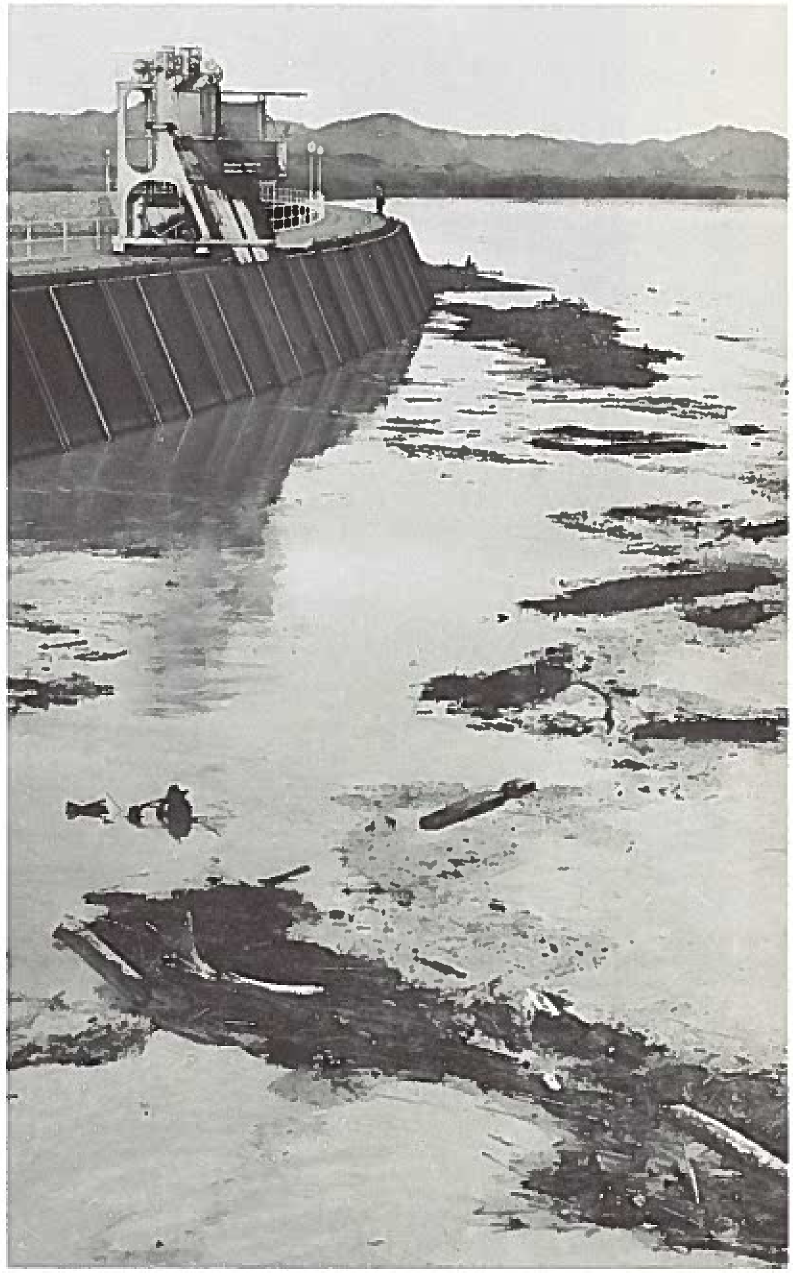
Bank reinforcement required hauling 30,330 cubic yards of dirt fill material. Bank protection required the use of 9,777 cubic yards of rock riprap and 2,730 cubic yards of clay for core trenching. Road surfacing and ramps required 4,114 cubic yards of gravel.

Brush and Weed Control:

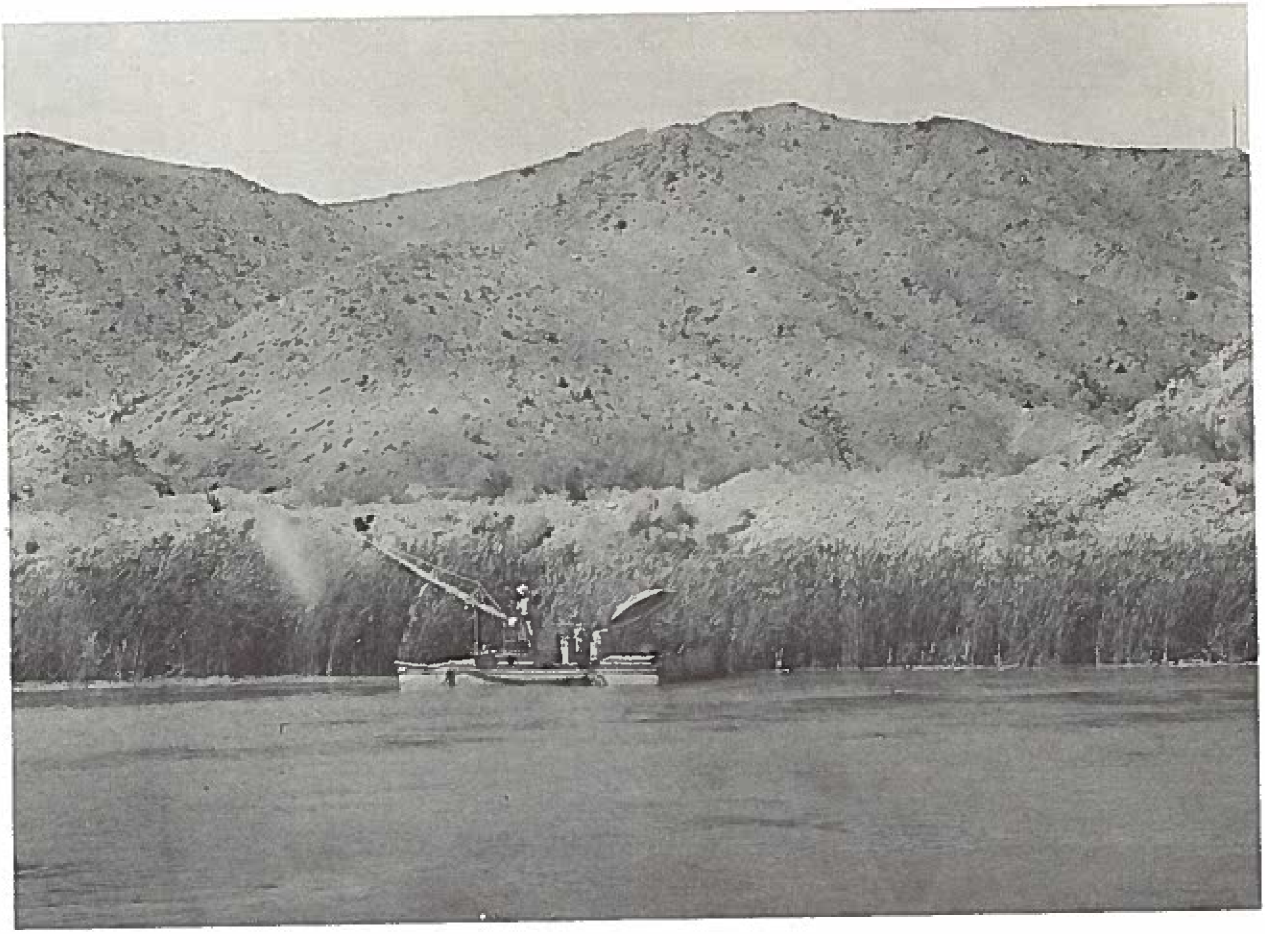
Chemical spraying for weed control on canals and drains by truck and boat required 4,160 man-hours to spray 930 acre-miles along canal and drain channels. Burning for weed control was not required.

Remote Control Operations:

Remote control operation of the New River Check and Wasteway, Wisteria Check and West Side Main Check, began February 1. Indicating equipment transmits water surface elevations, gate positions, wind direction and



All-American Canal Headworks, Imperial Dam. View upstream during sluicing of heavy trash from trashrack.



All-American Canal Sta. 250 below Laguna Rock Cut. View of spray boat 750 applying 24D and TCA to tules along right bank.

velocity, and high and low water alarms to the Water Control Section at Operating Headquarters in Imperial. The Water Control Section in turn makes the necessary gate adjustments for regulation of water flow at these structures by remote control.

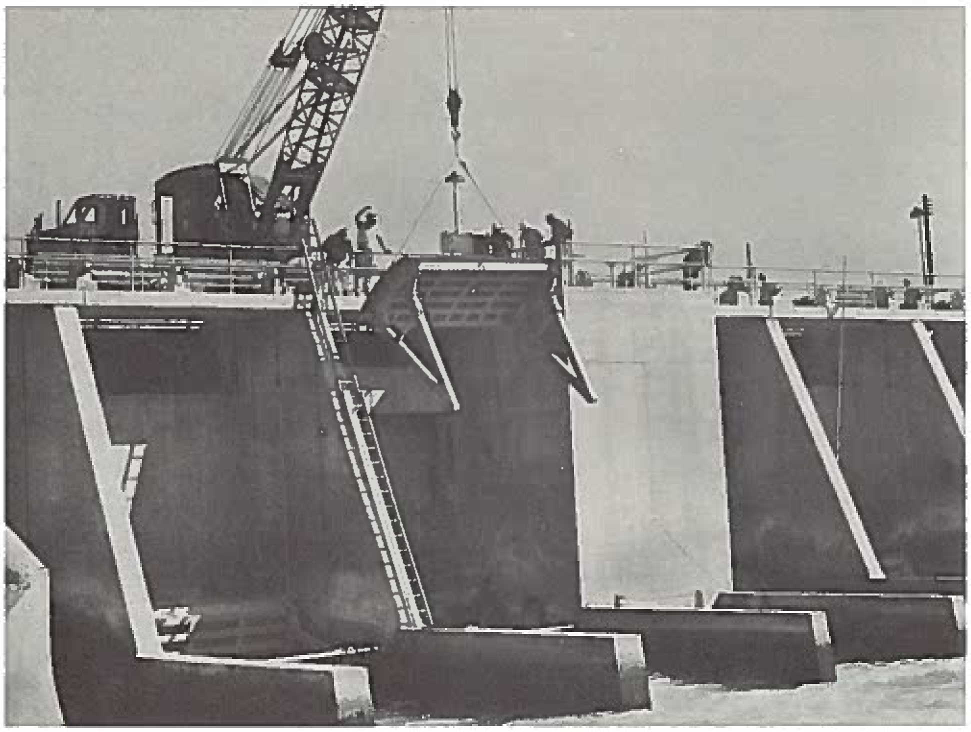
A patrolman-gatetender operates Central Main Check and, using a radio-equipped vehicle, provides a field check of the remotely controlled structures and facilities on the western reach of the Canal once each 8-hour shift, and as requested by the Water Control Section.

Remote control operations proved to be so successful during 1959 that plans were initiated to bring Central Main Check and Turnout under remote control in 1960.

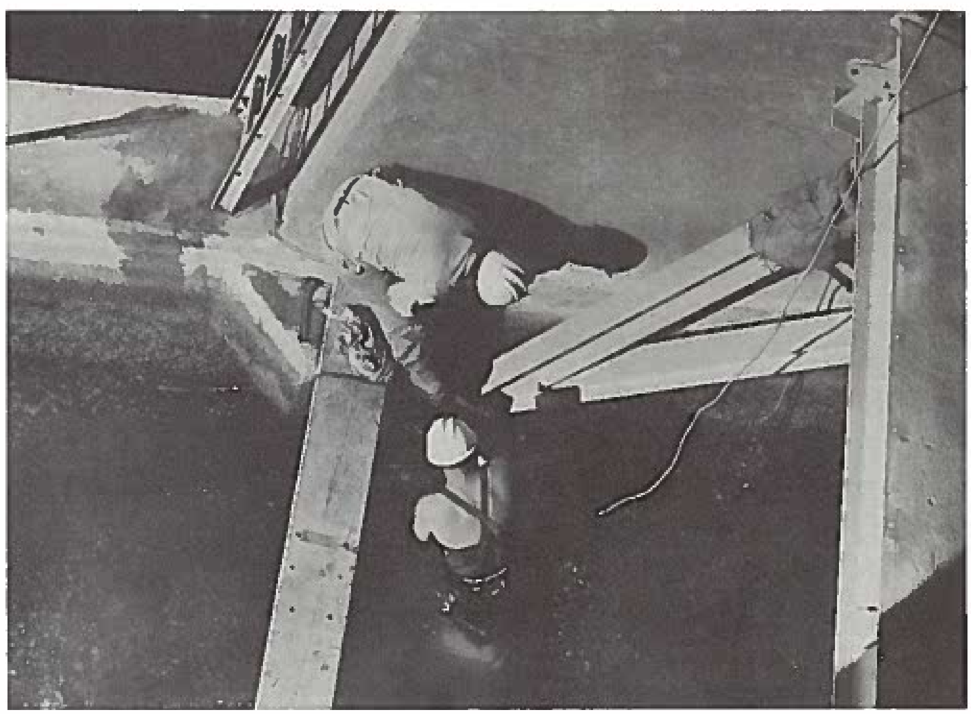
MAIN CANALS

General Comments

The demand for water during 1959 was 104,572 acre-feet more than in 1958. There were 239,368 orders processed, requiring the delivery



All-American Canal. Drop 1. Lowering Gate No. 4 after sand blasting and painting.



All-American Canal. Drop No. 1. Installation of Gate No. 4 in place, after sand blasting and painting.

of 2,045,454 acre-feet of water to the water users. In 1958, there were 228,633 orders processed and 1,940,882 acre-feet of water delivered.

Of the total number of orders received in 1959, there were 193,715 for irrigation water and 45,653 for stock water, as compared to 184,458 orders for irrigation water and 44,175 for stock water in 1958.

Under the regulation for delivery of water to users, which was instituted on March 1, 1956, 89.24 per cent of the total orders for water was delivered on the date for which it was ordered, 10.59 per cent was carried over one day, and 0.17 per cent was carried over two days.

The average daily departure from the estimated discharge at Pilot Knob Check for the year 1959 was +1.79 per cent.

The elevation of the Salton Sea as of December 31, 1959, was -234.30, higher by .30 of a foot than on December 31, 1958.

No incident occurred in the operation of the main canal system during the year which required a major water cutout.

The program of weed control was continued throughout the year on the entire system, by the use of chemicals and burning.

The major portion of this work was directed toward the elimination of perennial growth by application of chemicals. The principal burning operations were confined to removal of debris following application of chemicals, and on mature annual growth on the channels.

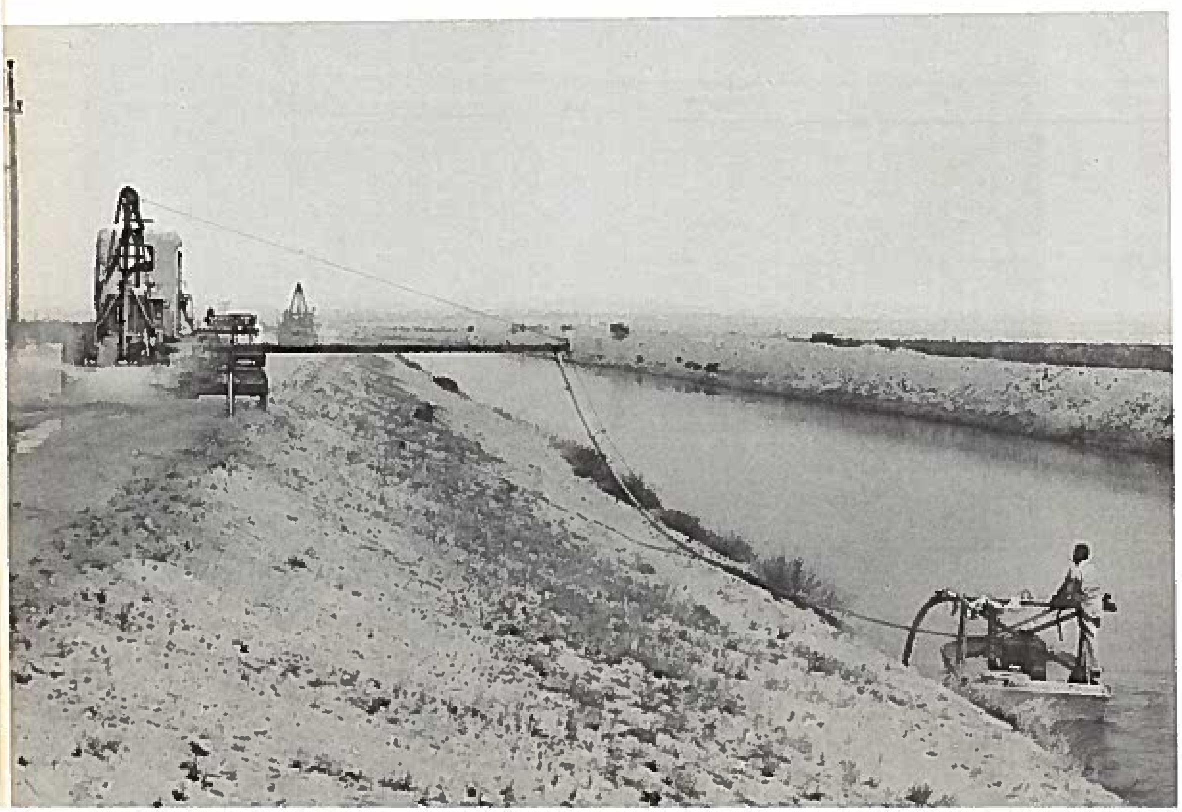
Patrolmen covered 4,481 miles on the canal system on rodent control work.

East Highline Canal

The East Highline Canal is approximately 50 miles in length, with 182 operational structures required for the delivery of water to the lateral canal system. The maximum diversion to East Highline Canal from the All-American Canal for 1959 was 2,474 second-feet, compared to 2,594 second-feet for 1958, and 2,421 second-feet for 1957.

Briar Canal

The Briar Canal is approximately 2.50 miles in length, with 18 operational structures required for the delivery of water to the lateral canal system. The maximum daily diversion to the Briar Canal from the All-American Canal for 1959 was 662 second-feet, compared to 629



All-American Canal. Coa la Branch near Sta. 20. downstream showing gra operation using water p mounted on boat.

second-feet for 1958, and 667 second-feet for 1957.

Rositas Canal

The Rositas Canal is approximately 11 miles in length, with 40 operational structures required for the delivery of water to the lateral canals. The maximum daily diversion to the Rositas Canal from the East Highline Canal for 1959 was 271 second-feet, compared to 235 second-feet for 1958.

Central Main Canal

The Central Main Canal is approximately 27 miles in length, with 68 operational structures required for the delivery of water to the lateral canals. The maximum daily diversion to Central Main Canal from the All-American Canal for 1959 was 1,149 second-feet, compared to 1,238 second-feet for 1958, and 1,325 second-feet for 1957.

West Side Main Canal

The West Side Main Canal is approximately 45 miles in length, with 152 operational structures required for the delivery of water to the lateral canals. The maximum daily diversion to West Side Main Canal from the All-American Canal for 1959 was 1,182 second-feet, compared to 1,216 second-feet for 1958, and 1,175 second-feet for 1957.

Vail Canal

The Vail Canal is approximately 18 miles in length, with 91 operational structures required for the delivery of water to the Vail lateral canals. The maximum daily diversion to the Vail Canal from the East Highline Canal for 1959 was 325 second-feet compared to 315 second-feet for 1958, and 256 second-feet for 1957.

Brush and Weed Control

Brush and weed control work covered 2,368 acre-miles, compared to 1,261 acre-miles for

Inlet headwall for Dahlia siphon (County Airport extension).

All-American Canal Lateral 7. View north showing brush burning operation.

1958, and 1,730 acre-miles in 1957. Three kinds of chemicals were used for the different types of growth. The type of plant, stage of growth, and the season of the year applications are made determine the kind of chemical used.

Channel Maintenance

There were 14 miles of dragline cleaning on the main canals and 217 miles of canal banks and operational roads graded in connection with maintenance operations.

LATERAL CANALS

General Comments

The lateral canal system consists of 1,515 miles, the operation and maintenance of which is carried on by the seven operating divisions. There are 10,523 District-maintained structures on the lateral canal system, of which 7,903 are concrete, 803 are rubble, 1,804 are wood, and 13 of a combination of materials. Each year a portion of the existing wood structures are replaced with concrete structures. Minor repairs were made on 1,554 structures, and major repairs on 139 structures.

General maintenance of the lateral canals required 94 miles of cleaning by hand labor, 157 miles of cleaning by draglines, and 204 miles of cleaning by bucket-line dredges. There were 1,932 miles of canal banks and operational roads graded in connection with maintenance operations.

Brush and Weed Control

Brush and weed control in 1959 covered 6,964 acre-miles, compared to 6,119 acre-miles in 1958, and 6,565 acre-miles in 1957.

The same methods of chemical control were used on the lateral canals as on the main canal system. The kind of chemical used was determined by the type of growth to be treated and the season of the year the applications are made.

Ruth Dredge showing bucket line with double idler.

Moss Control

Moss control work on the canal system involved 850 miles treated with chemicals and 1,155 miles using mechanical equipment.

CONSTRUCTION

MAIN CANALS

General Comments

Construction and reconstruction on the main canal system was of a minor nature this year, confined to replacement of existing points of control.

Major Work Authorization on the new Rositas Canal was completed during 1959.

East Highline Canal

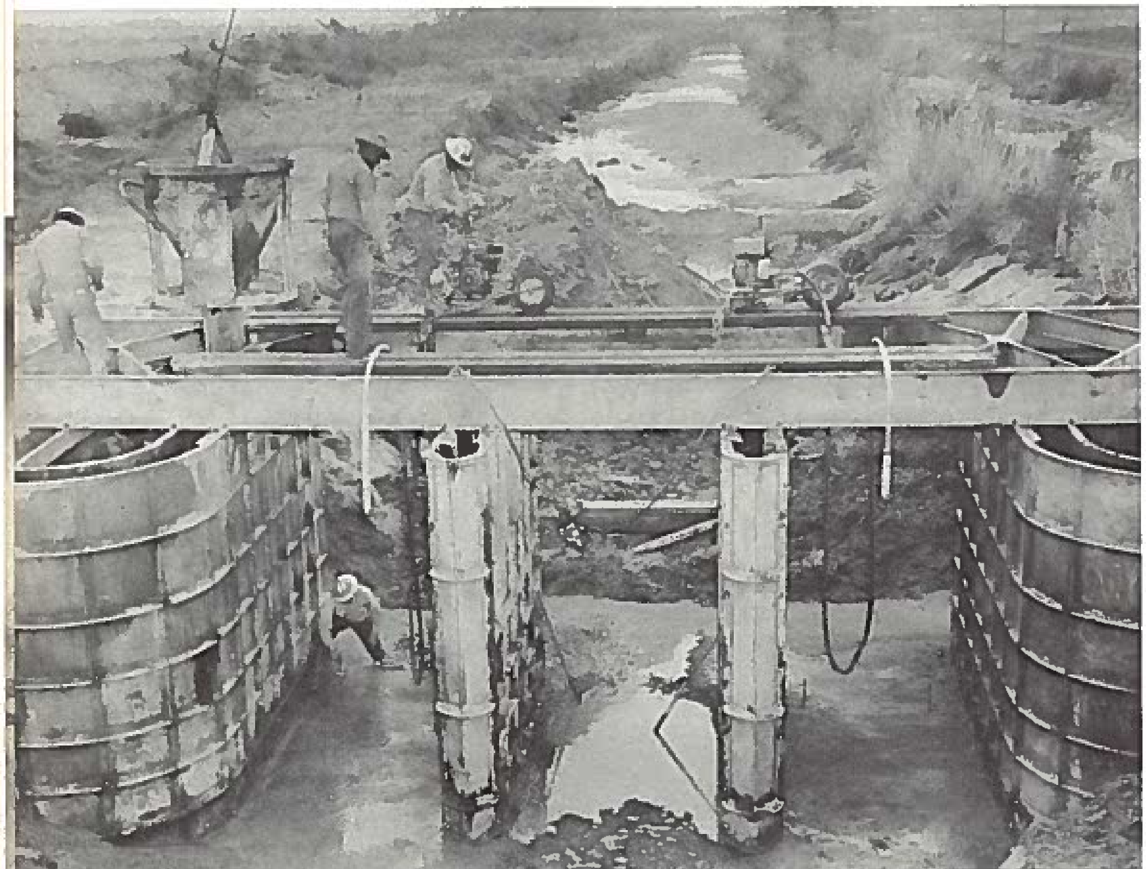
Construction work on the East Highline Canal consisted of the replacement of the Malva Lateral 1, Pepper Lateral, and "O" Lateral Headings; installation of a control structure at the Pansy Lateral Heading; and the replacement of four deliveries.

Central Main Canal

A new control structure was installed below No. 4 Heading, and the old wood control structures Nos. 2 and 10 were replaced with concrete structures.

West Side Main Canal

Construction work on the West Side Main Canal consisted of the replacement of four headings: Trifolium Lateral 12, Trifolium Lateral 13, Trifolium Lateral 4, and Trifolium Lateral 6. Two checks were installed, one at Trifolium Lateral 13 Heading and the other at Trifolium



Front view of steel form for 3-bay structure, downstream channel of West Side Main Canal at Trifolium Lateral 13 heading.

Lateral 6 Heading, and three deliveries were replaced.

Vail Canal

A hydraulic, automatic, flow-regulation structure was installed in the Vail Canal at the North End Dam, and two deliveries were replaced.

Rositas Canal

Major Work Authorization No. 55-4, dated June 8, 1956, was completed during 1959, by the installation of new headings at the Redwood, Rose and Reed Canals, two control structures in outlet in Central Main Drain and outlet structure for Central Main Drain under Rositas Canal. The completion of this work brings to a close the supplementing of water from the Alamo River to serve the Mesquite Lake Area, which now receives all water from the East Highline Canal.

LATERAL CANALS

The construction program on replacement of existing wood checks and deliveries on the lateral canal system, as they become inoperative, was carried on during 1959, with a total of 734 structures installed, which are listed as follows: There were 690 structures replaced and 44 structures were additions. There were 15 new concrete deliveries installed, 396 deliveries replaced with concrete, 5 new concrete checks were installed, 277 checks were replaced, 24 new concrete control structures were installed, 15 were replaced, 1 siphon and 1 bridge were replaced.

A portion of the Dahlia Lateral Canal was relocated and 1,574 feet of 60-inch pipe was installed. This work was performed by the District at the request of the County of Imperial in connection with the extension of the runway for the Imperial County Airport. The County of Imperial paid the total cost.

Reconstruction and widening of State High-

Construction of new outlet for Central Main Drain under Rositas Canal at Rose Heading.

way 115 from U.S. Highway 80 to Sandia Turn necessitated the replacement or extension of canal and delivery crossings as well as the replacement of crossing at U.S. Highway 80, and the Holton Inter-Urban Railroad crossing for the Ash Canal crossings. All work was performed by the District with the State Division of Highways paying the total cost.

In connection with betterment of District's and Landowners' facilities, District's Regulation No. 34 of the Rules and Regulations Governing the Distribution and Use of Water provides for the rearrangement or exclusion of irrigation lateral termini to reduce or eliminate maintenance costs. There was a recorded agreement to cover each individual job with the District's participation, and covered 11.20 miles.

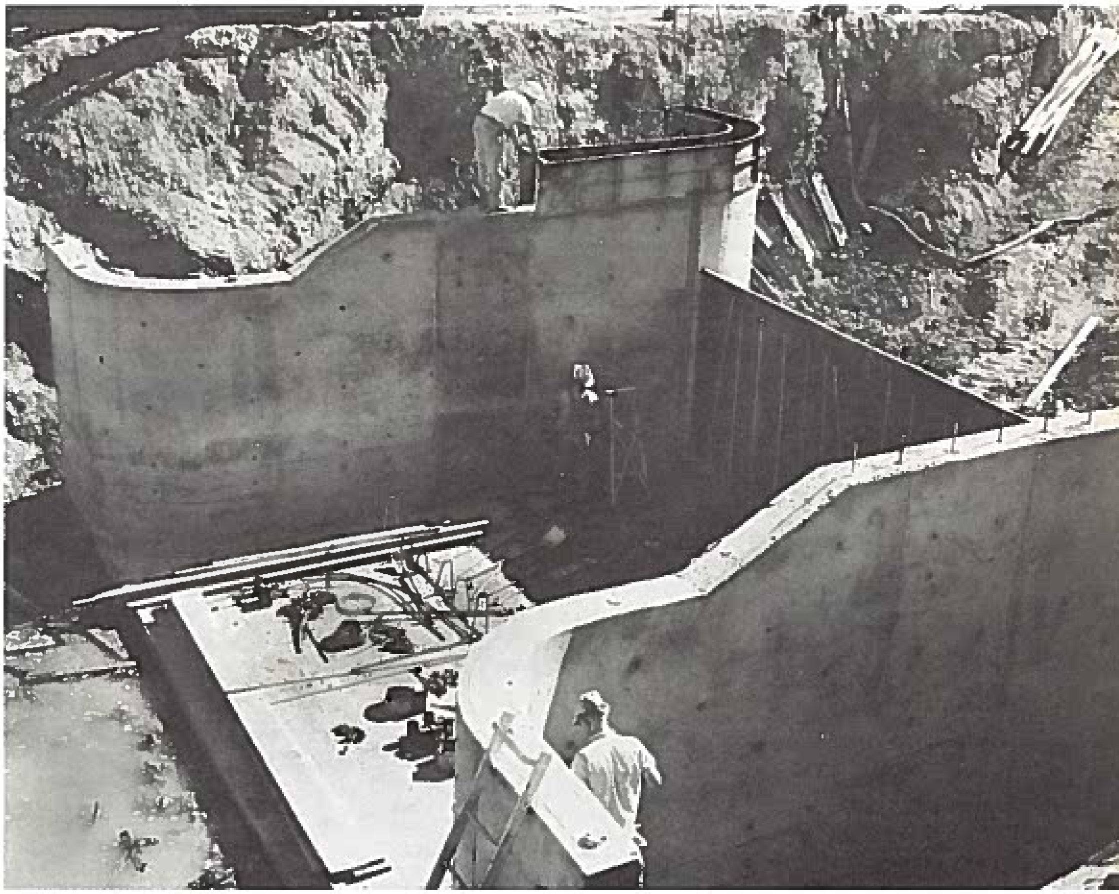
The District's participation in this 11.20 miles resulted in the decrease of 4.76 miles of lateral canals to be operated and maintained by the District.

Private contractors installed 126.90 miles of private concrete-lined ditches for the landowners during 1959, compared to 105.40 miles in 1958, and 135.40 miles in 1957; this, added to installations in prior years, makes a total of 798.90 miles of concrete-lined ditches installed to date. The District furnished the engineering required prior to installation of the linings. There were 269 field investigations made in 1959, in connection with the concrete-lined head ditches, compared to 259 in 1958, and 308 in 1957.

The program of County Road crossing replacements was continued with 87 crossings replaced this year as compared to 118 in 1958, and 97 in 1957.

Trifolium Extension Lateral 7-A —sealing expansion joints in concrete lining.

Trifolium Extension Lateral 7-A — Sta. 24+30 — slip form used by local contractor.



Construction of Central Main Canal Drop No. 2. Setting top extension form on east side-wall.

DRAINAGE SYSTEM

Principal Features

The District's program on the development of a drainage system contemplates the operation and maintenance of a drain outlet to each Governmental subdivision of 160 acres; approximately 95 per cent of the developed land is now so served.

During 1959, over 3,421,724 tons of salt entered Imperial Valley and 3,971,357 tons were removed to the Salton Sea through District's drainage facilities, resulting in an apparent gain in salts removed of 549,633 tons, or a gain of 16.06 per cent.

The rate of expansion of the drainage system is considerably less than during prior years due to the large percentage of developed land being served. The major activity on the drainage program is confined to maintenance and improvement.

The Drainage Design Unit received 100 requests for tile drainage investigations and recommendations and completed 127 requests for this and prior years.

MAIN DRAINS

The main drain system is distributed over the area and serves as a transportation channel for the lateral drain system and drain outlets for the area in which they are located. The main drain system, exclusive of New River and the Alamo River, consists of 556 miles of channels, and is operated and maintained by the Drainage Construction and Maintenance Unit.

Of the 1,725 structures located throughout the drain system and maintained by the District, 1,560 are concrete and 165 are wooden.

Maintenance activities on main drains included general cleaning of 57 miles of drains with hand labor, 196 miles were cleaned with draglines, and motor graders and bulldozers were used to grade 380 miles of main drain banks and operational roads.

Brush and Weed Control

Brush and weed control work on the main drain system in 1959 covered 1,359 acre-miles, compared to 1,598 acre-miles for 1958, and 1,607 acre-miles in 1957.

Three kinds of chemical control were used on the main drains; the type of plant, stage of growth, and the season of the year applications were made determined the kind of chemical used.

Moss Control

Moss control work on the main drain system in 1959 included three methods of control; chemical, which required 2,692 man-hours on 406 miles, hand labor requiring 68 man-hours, and mechanical equipment requiring 184 man-hours on 28 miles.

LATERAL DRAINS

The lateral drain system is operated and maintained by the 7 operating divisions, and consists of 818 miles of lateral drains. There are 626 District-maintained structures throughout the lateral drain system of which 409 are concrete, 54 rubble, 104 wooden, and 59 a combination of wood and other materials.

General maintenance of the lateral drains included cleaning 28 miles with hand labor,

Pouring floor slab Alamo River Drop 2.

227 miles with draglines, and 56 miles with bucket-line dredges. Motor graders and bulldozers were used to grade 389 miles of lateral drain banks and operational roads.

Brush and Weed Control

Brush and weed control work on lateral drains for 1959 covered 1,760 acre-miles, as compared to 1,411 acre-miles in 1958, and 798 acre-miles in 1957.

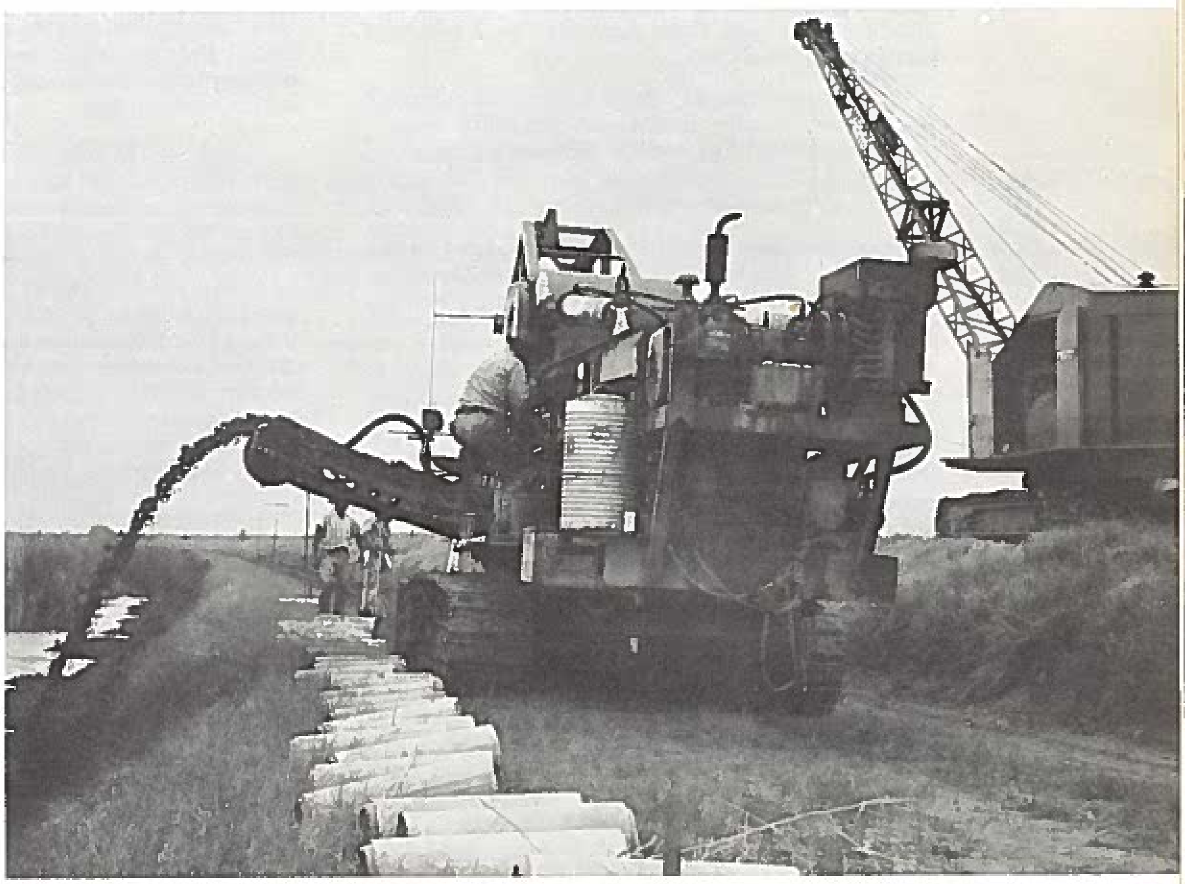
Moss Control

Moss control work on the lateral drain system amounted to 48 miles treated with chemicals and 197 miles on which mechanical equipment was used.

CONSTRUCTION

There were 3.85 miles of lateral drains and .43 of a mile of main drains constructed during the year. To provide a more efficient drainage system, .32 of a mile of lateral drains and 2.28 miles of main drains were reconstructed. Deepening work consisted of 1.73 miles on main drains and 3.26 miles on lateral drains.

The erosion control program on the drainage system was vigorously prosecuted again this year. Construction of Alamo River Control Drop No. 2, authorized by the Board on March 31, 1959, was completed during 1959. The drop was installed near the center of the N. E. ¼ of Section 12, 12-13. It is a reinforced-concrete, overpour weir-type structure, with a weir width of 70 feet, weir height of 11 feet, length of 43 feet, and depth of 16 feet. It has a capacity of 3,150 c.f.s. and was installed to control erosion in the Alamo river.



All-American Canal above Allison Check, right bank, showing tile machine in operation.

Continuing the program of erosion control on the Holtville Main Drain, there were two additional structures installed this year—control structure No. 4 east of Holt Avenue and control structure No. 3 at the junction of Holtville Drain No. 6.

Erosion control on the remainder of the drainage system included the replacement of 21 old metal flume drain crossings with concrete pipe and fill.

Relocation of the Rose Drain outlet pump station was also constructed in 1959. The new structure, with a capacity of 40 c.f.s., is located just west of the old outlet structure and serves approximately 7,600 acres in the Mesquite Lake area.

Two State Highway Crossings were replaced—Pear Drain No. 1 at U. S. Highway 80, and Nettle Lateral Drain at State Highway 111. Irrigation and drainage facilities crossing and paralleling State Highway 111 from Standard Canal to Calipatria were relocated and reconstructed with the State Division of Highways paying the total cost.

In those instances where it was not practical to provide gravity outlets for farm-tile drains, the District installed five tile effluent sump-pump outlets in 1959, making a total of 102 sump pumps in operation on December 31, 1959.

In connection with installation of sump-pump outlets for tile drains under the Salton Sea Classification, three were installed in 1959, making a total of 22 such installations to date.

Private contractors installed 531.11 miles of private farm tile drains for landowners during 1959, compared to 490.16 miles in 1958, and 560.97 miles in 1957. On the installations, the District and the Soil Conservation Service cooperated with the landowners.

The total mileage of drains constructed during 1959 is as follows:

Miles of open drains constructed by Imperial Irrigation District	4.28
Miles of open drains reconstructed and deepened by Imperial Irrigation District	7.59
Miles of farm-tile drains constructed by contractors	531.11

The total mileage of drains as of December 31, 1959, is as follows:

Miles of District main drains	555.58
Miles of District lateral drains	817.94
Miles of farm-tile drains	7,361.94

ALL-AMERICAN CANAL CONTRACT

Imperial Dam and the All-American Canal were constructed pursuant to the terms of a contract dated December 1, 1932, between the District and the United States of America. The District is obligated to pay its proportionate share of the cost of the works constructed under the contract, without interest, in annual installments over a period of 40 years. These installments are to be 1 per cent each for the first 5 years, 2 per cent each for the next 10 years, and 3 per cent each for the final 25 years, of the total cost of the District's share of the works.

The District is required, when necessary, to levy and collect assessments so that, regardless of defaults or delinquencies in the payment of assessments, the United States shall receive its money when due.

On July 14, 1954, Imperial Irrigation District was informed by the Secretary of the Interior that its share of the costs of the All-American Canal, to be repaid to the United States under the terms of the contract of December 1, 1932, was $25,020,001. Under the terms of the contract, the District is required to pay the United States the net proceeds from electric power generated on the All-American Canal and had, prior to March 1, 1955, which is the date the first payment became due, advanced approximately $1,142,000 to be applied and credited against payments as they became due.

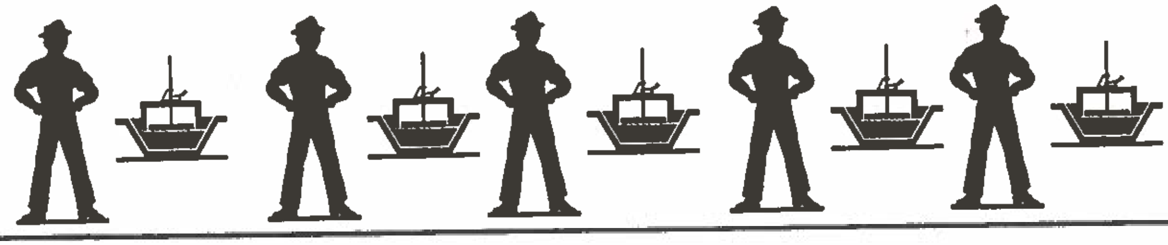
After application against the first five annual payments of $250,200 each there remained, as a credit to Imperial Irrigation District, $345,385 from net proceeds; $3,000,000 from Public Law 750, 81st Congress; and $201,483 as a credit for the Gila Project's participation in Laguna Dam cost. This total credit of $3,546,868 will be applied to subsequent payments and will be supplemented each year by additional net power proceeds as they become due and payable.

DISPOSITION OF WATER DIVERTED TO ALL-AMERICAN CANAL AT IMPERIAL DAM DURING 1959

	Acre-Feet	Acre-Feet
Diverted at Imperial Dam (Metered at Station 60)		5,959,654
Diversions to Yuma Project*	1,419,141	
Diverted to River at Pilot Knob Check	1,037,617	
Loss from Imperial Dam to Pilot Knob Check	101,790	2,558,548
All-American Canal Below Pilot Knob Check		3,401,106
Diversions to Coachella Branch at Drop No. 1	492,892	
Loss from Pilot Knob to Drop No. 1	68,041	560,933
Discharge Below Drop No. 1		2,840,173
Loss and Unaccounted for in All-American Canal and Other Main Canals	293,739	
Operational Loss from All-American Canal and Other Main Canals	29,702	323,441
Delivered to Lateral Canal System		2,516,732
Loss and Unaccounted for in Lateral Canal System Before Delivery to Users	412,925	
Operational Loss from Lateral Canals	58,353	471,278
Deliveries to Users**		2,045,454

*Water diverted to the Yuma Project, and its proportionate share of losses, is not charged to nor is it a part of water diverted for Imperial Irrigation District and Coachella Valley County Water District. Imperial Irrigation District diverts and transports water for the Yuma Project through the upper section of the All-American Canal in accordance with the terms of the All-American Canal Contract dated December 1, 1932, and the Contract dated March 4, 1952 (Contract No. Ilr-747, Supplemental) Amendatory of and Supplemental to the Contract of December 1, 1932.

**Deliveries to Users are based on gate measurements which reflect an amount at least 10 per cent lower than the quantity actually delivered. That difference is included in the total figure shown as "Loss and Unaccounted For in Lateral Canal System before Delivery to Users." The latter also includes unmeasured use of water by some 1,500 service pipes supplying homes and subdivisions lying outside of municipal water systems.



ANNUAL INVENTORY OF AREAS RECEIVING WATER SERVICE DURING 1959

CROP SURVEY

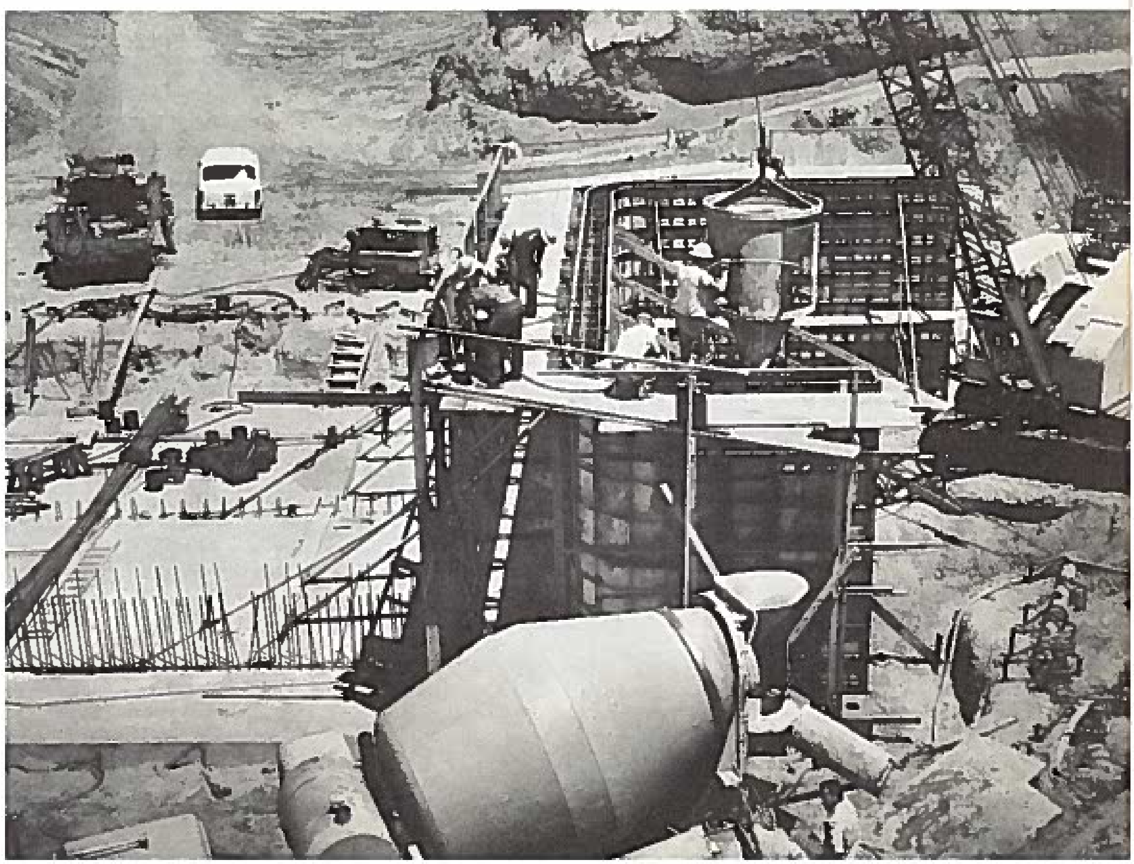
GARDEN CROPS	Acres Being Served Gross	Duplicate	Net
Beans	270	30	240
Bell Peppers	2		2
Broccoli	112	2	110
Broccoli (Seed)	6	4	2
Cabbage	2,769	2,067	702
Cantaloupes	7,027	680	6,347
Carrots	5,810	2,388	3,422
Carrots (Seed)	175		175
Cauliflower	22	20	2
Cauliflower (Seed)	4	4	
Celery	4	4	
Cucumbers	230	165	65
Eggplant	67	5	62
Endive	88	38	50
Flowers	62		62
Flowers (Seed)	3		3
Garlic	615	145	470
Herbs (Mixed)	5	5	
Lettuce	40,432	31,005	9,427
Lettuce (Seed)	358	60	298
Lettuce (Romaine)	15		15
Melons (Mixed)	16	6	10
Mustard	70	60	10
Okra	83	34	49
Onions	3,597	2,222	1,375
Onions (Seed)	792	173	619
Parsley	8	4	4
Parsley (Seed)	7		7
Peas	48	36	12
Potatoes	5	5	
Pumpkins	2	2	
Radishes	7	7	
Rapini	15	15	
Squash	1,464	379	1,085
Sweet Potatoes	110		110
Table Beets	38	38	
Table Beets (Seed)	17		17
Tomatoes	4,636	826	3,810
Vegetables (Mixed)	90	2	88
Watermelons	5,275	55	5,220
Total	74,356	40,486	33,870

FIELD CROPS	Acres Being Served Gross	Duplicate	Net
Alfalfa	204,456	59,098	145,358
Alfalfa (Seed)	2,728	2,696	32
Barley	100,837	1,879	98,958
Bermuda	1,111	158	953
Castor Beans	20	20	953
Clover	2,890	233	2,657
Clover (Seed)	304	304	
Cotton	57,281	5,311	51,970
Ear Corn	193		193
Flax	33,166	339	32,827
Grains (Small)	2		2
Millet	888	58	830
Head Corn	20,302	11,895	8,425
Oats	1,764	75	1,689
Sesbania	4,016	1,787	1,229
Silage	124	124	
Soybeans	86	80	
Sudan	5,201	3,753	1,448
Sugar Beets	48,009	821	47,188
Sugar Beets (Seed)	20		20
Wheat	1,205		1,205
Total	484,621	89,631	394,990
PERMANENT CROPS			
Asparagus	1,637		1,637
Citrus (Mixed)	193		193
Dates	123		123
Grapefruit	840	4	836
Grapes	60		60
Lemons	147		147
Nursery	69		69
Nutmeg	116	116	
Oranges	342		342
Pasture (Permanent)	669	176	493
Pecans	94		94
Tangerines	263		263
Total	4,553	296	4,257
GRAND TOTAL	563,530	130,413	433,117

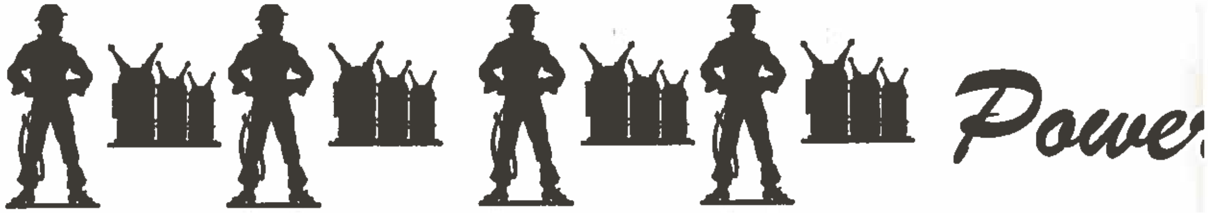
Average No. of Farms Reported 6,081
Average No. Owner-Operated (54.04%) 3,286
Average No. Tenant-Operated (45.96%) 2,795
Average Area-Acres 74.64

SUMMARY OF AREAS SERVED

CROPS	Gross	Duplicate	Net
Field Crops	484,621	89,631	394,990
Garden Crops	74,356	40,486	33,870
Permanent Crops	4,553	296	4,257
Totals	563,530	130,413	433,117
Area Being Reclaimed (Leaching)			7,176
Net Area Irrigated			440,293
Area of Farms in Homes, Feed Lots, Corrals, etc.			13,579
Area in Cities, Towns, Airports			10,797
Total Area Receiving Water			464,669
Area Farmable but not Farmed during 1959 (Fallow Land)			27,763
Area in Drains, Canals, Rivers, Railroads			70,961
Area Below -230 Salton Sea Reserve Boundary and Area Covered by Salton Sea			42,000
Undeveloped Area of Imperial, West Mesa, East Mesa, and Pilot Knob Mesa Units			302,482
TOTAL			907,875



Pouring east side wall Alamo River Drop 2.



J. FRED HESSE
Department Manager

The District's power service area includes practically all of Imperial County and most of Coachella Valley in Riverside County. It extends over approximately 6,600 square miles, of which only about 20 per cent is populated; however, the District provides electric service to 99 per cent of the potential customers within this area.

Power for customers in the service area is provided by District generation units and purchases of power from other agencies. The District owned and operated units include Pilot Knob Hydro-electric Plant, three other hydro-electric plants located at Drops Nos. 2, 3, and 4 on the All-American Canal, the El Centro Steam Plant, and the Brawley Diesel Plant. Total generating capacity of District plants amounts to 173,400 kilowatts with supplemental power acquired by purchase from the U.S. Bureau of Reclamation at Davis Dam, and by joint participation shared with Arizona Public Service Company and California Electric Power Company in the Axis Steam Station located at Yuma, Arizona.

During 1959, the District's hydro-electric plants supplied 38 per cent of the system's power requirements, 22 per cent was secured from Davis Dam, 20 per cent was provided by the El Centro Steam Plant and the Brawley Diesel Plant, 17 per cent from the Axis Steam Plant, and 3 per cent from other purchases.

Operation and Maintenance

Although ultimate consumers used more electric power during 1959, operation and maintenance costs of $4,325,396 were $76,894 less than the same costs for the previous year. This reduction of expenses is attributed, in part, to the decrease in the amount of purchased power and interchange of power.

During 1959, twenty transformers were rewound and 875 other transformers were reconditioned, painted, and tested in the District Transformer Shop at Imperial. District technicians tested 4,305 meters in the Meter Shop and 235 meters in the field on customers' premises.

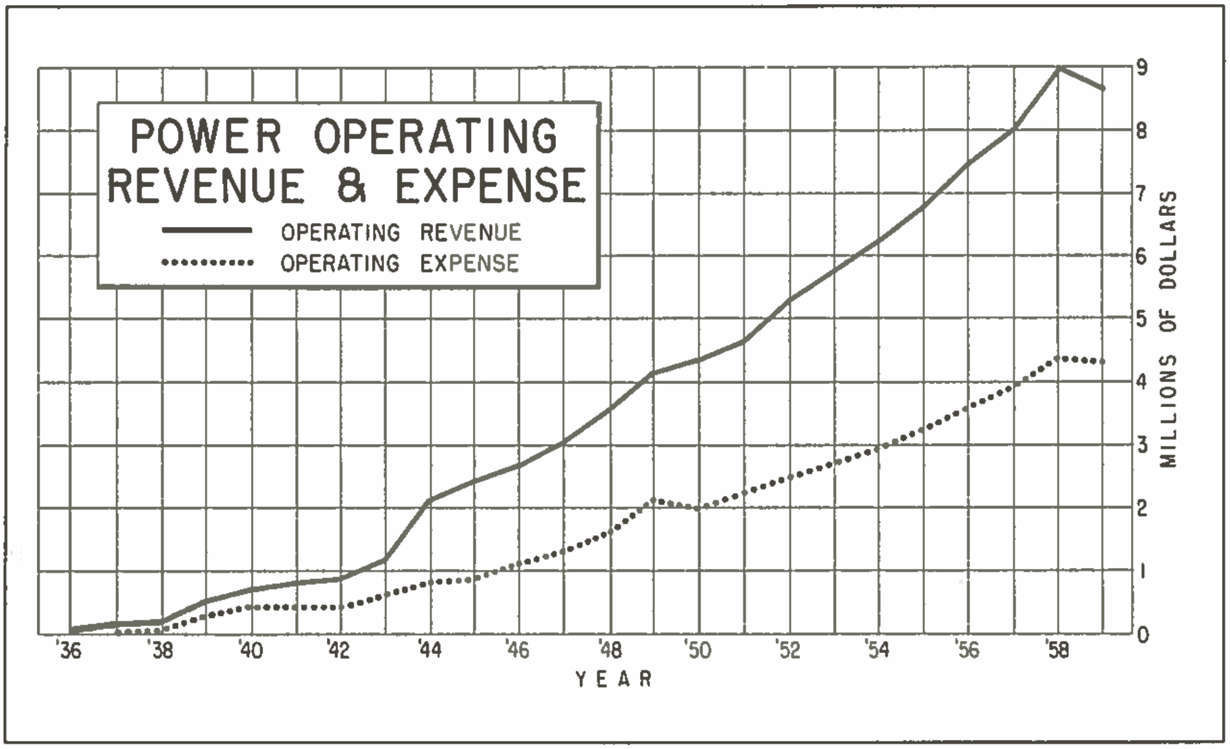
Construction

In order to accommodate the increasing load of the District's power system, a total of $1,770,412 was spent on current additions and improvements to the system. That expenditure, which exceeded the 1958 figure by $586,611, was distributed as follows: $46,776 for general plant, $65,609 for engineering and supervision, $5,737 for generation, $510,527 for transmission, and $1,141,763 for distribution. Of the more than a million dollars spent on additions and betterments to the distribution system, $357,518 was spent for line transformers, $254,288 for poles and fixtures, $161,422 for conductors and devices, $90,858 for meters, and $63,936 for services.

COSTS OF OPERATION AND MAINTENANCE

	1959	1958	Decrease - Increase +
El Centro Steam Plant	$1,422,258	$1,417,235	$ 5,023+
Hydro-electric Plants	120,659	114,821	5,838+
Brawley Diesel Plant	42,429	45,272	2,743−
Purchased Power	1,051,767	1,231,233	176,466−
Transmission System	164,875	165,204	329−
Distribution System	567,305	559,080	8,225+
Customer Accounting & Collection	268,300	272,494	4,194−
Sales Promotion	104,805	89,938	14,867+
Administrative & General	582,755	506,904	75,851+
TOTAL	$4,325,396	$4,402,260	$76,894−

Department



At the close of 1959 there were 451.6 miles of transmission lines and 346.7 miles of subtransmission lines in service throughout the system. Construction of six new substations provided the system with a total of sixty-six substations which include 181 power transformers with a total capacity of 678,335 kva. Addition of 61.7 miles of primary distribution lines brought the total length of the distribution system to 2,280 miles of line in service at the end of the year.

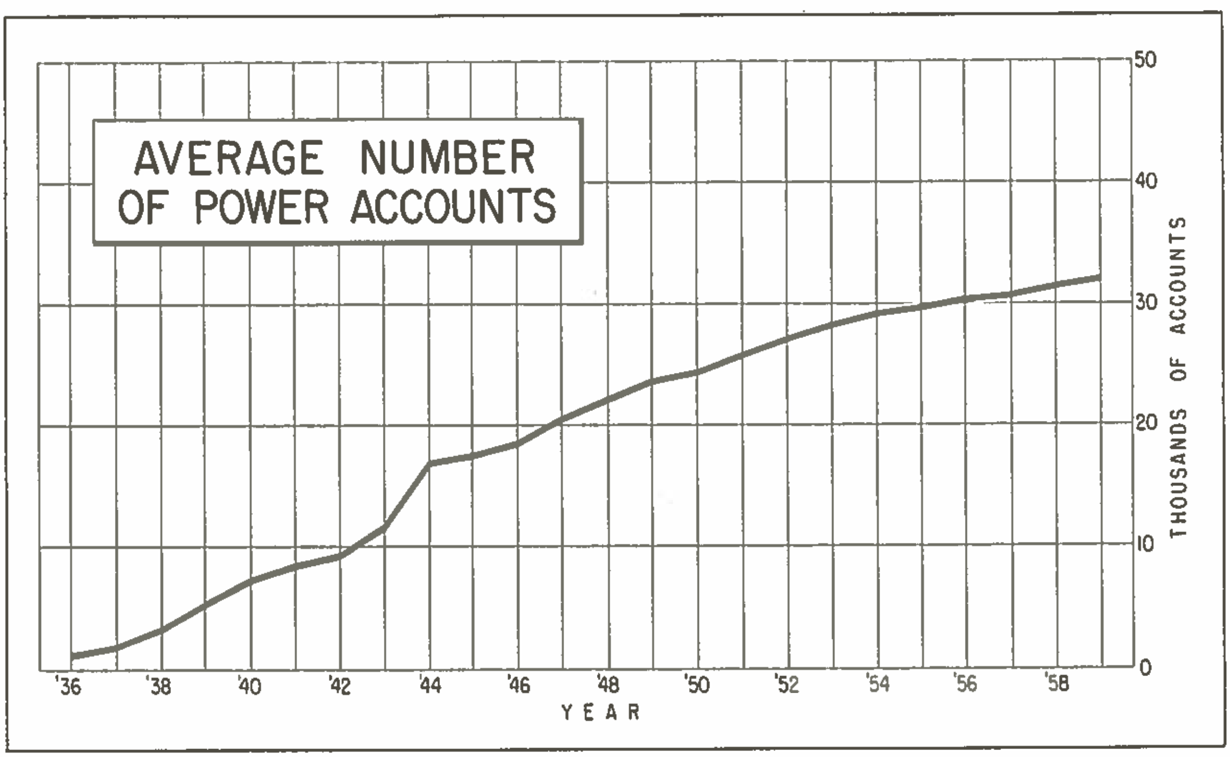
Sales and Service

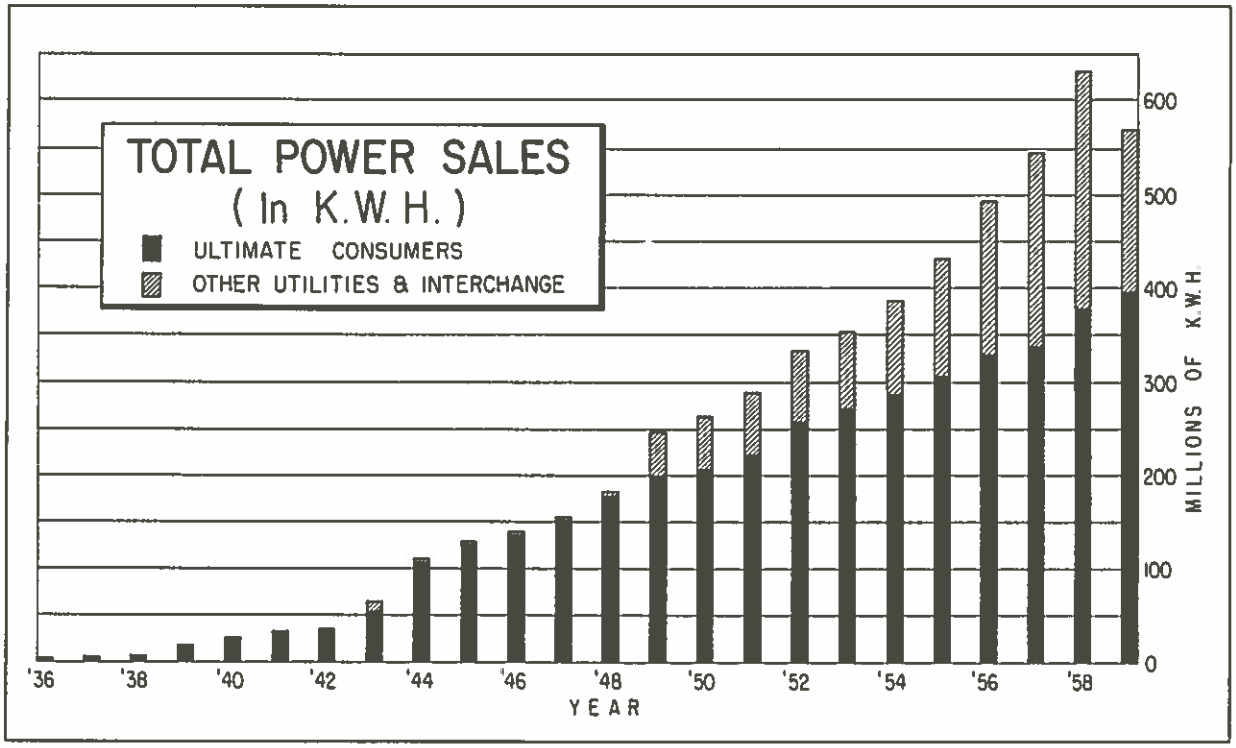
Sales to ultimate consumers, the true yardstick of system growth, continued to follow a steady upward trend in both consumption of electric power and revenue return; however, a substantial decrease in sales of power to other utilities and curtailing of power interchange agreements caused a reduction in total sales from 630,420,996 kilowatt-hours in 1958 to 569,884,754 in 1959. A companion reduction of the peak load of 145,800 kilowatts achieved during 1958, to the lower peak load of 143,600 kilowatts was experienced in 1959. This decline was due partly to the decrease in wholesale power sales and partly to a more normal summer period during the year.

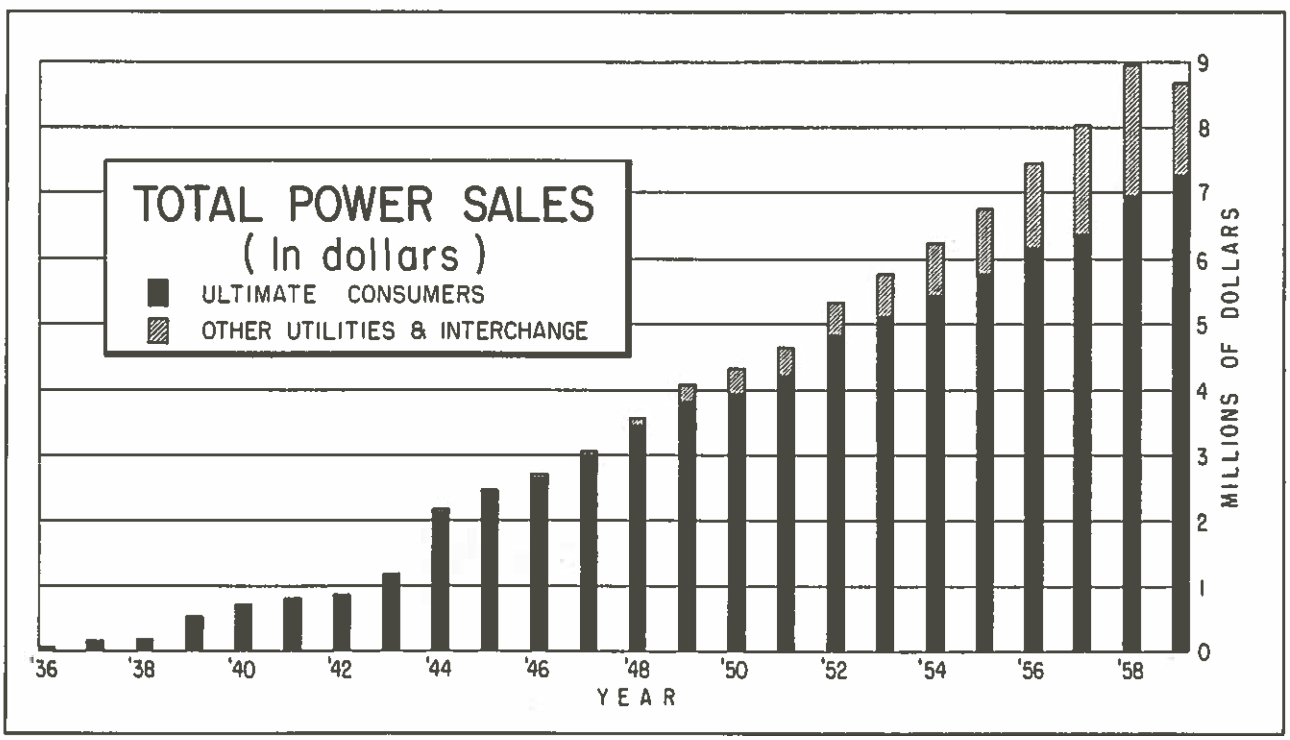
Although summer temperatures were confined more to the normal range, resulting in a decrease of the abnormally high air-conditioning load reached in 1958, annual usage of electric power by residential customers not only equalled, but slightly exceeded the 1958 average of 6,694 kilowatt-hours with a new high of 6,703 kilowatt-hours for 1959. Further growth of the system was reflected by a substantial gain in the number of customers served in 1959, over those served in 1958. At the close of the year there were 30,812 active meters in service.

POWER SALES 1959

	1959		1958	
Ultimate Consumers	**Dollars**	**Per cent**	**Dollars**	**Per cent**
Domestic	$3,171,888	36.6	$3,106,620	34.6
Commercial	2,096,404	24.2	1,965,687	21.9
Industrial	1,179,097	13.6	1,105,328	12.3
Agricultural	575,175	6.7	555,209	6.2
Street lighting, Public Authority, & Interdepartmental	238,227	2.7	230,637	2.5
Total These Classes	$7,260,793	83.8	$6,973,481	77.5
Others				
Other utilities	$1,197,996	13.8	$1,449,082	16.0
Interchange	206,818	2.4	575,345	6.5
Total These Classes	$1,404,814	16.2	$2,024,427	22.5
TOTAL SALES	$8,665,607	100.0	$8,997,908	100.0




TOTAL POWER SALES
(In K.W.H.)
ULTIMATE CONSUMERS
OTHER UTILITIES & INTERCHANGE
MILLIONS OF K.W.H.
0
100
200
300
400
500
600
'36
'38
'40
'42
'44
'46
'48
'50
'52
'54
'56
'58
YEAR


TOTAL POWER SALES
(In dollars)
ULTIMATE CONSUMERS
OTHER UTILITIES & INTERCHANGE
MILLIONS OF DOLLARS
0
1
2
3
4
5
6
7
8
9
'36
'38
'40
'42
'44
'46
'48
'50
'52
'54
'56
'58
YEAR

Promotional Activities

Providing well over one-third of the total revenue derived from power sales, at a high rate of return per kilowatt-hour, the domestic consumer continues to be the District's most important single class of customers. In recognition of that importance the District maintains a year-round promotion campaign designed to encourage increased use of electricity in the home. During 1959, the promotion program included extensive advertising in newspapers, radio, television, direct mail, counter and lobby displays, various brochures, and use of outdoor bulletins; public demonstrations of cooking techniques, use and care of electric appliances, storing of food in freezers, operation and care of laundry equipment, and use of small electric appliances; and personal contacts with customers throughout the service area. Special emphasis in advertising was given to the heat pump for solving year-round air-conditioning requirements, and strong promotions directed toward electric ranges, clothes dryers, and housewares were included in the 1959 campaign.

Average annual domestic consumption of Imperial Irrigation District power customers was approximately double the national average again in 1959. The average District customer used 6,703 kilowatt-hours, national average consumption was 3,550 kilowatt-hours.

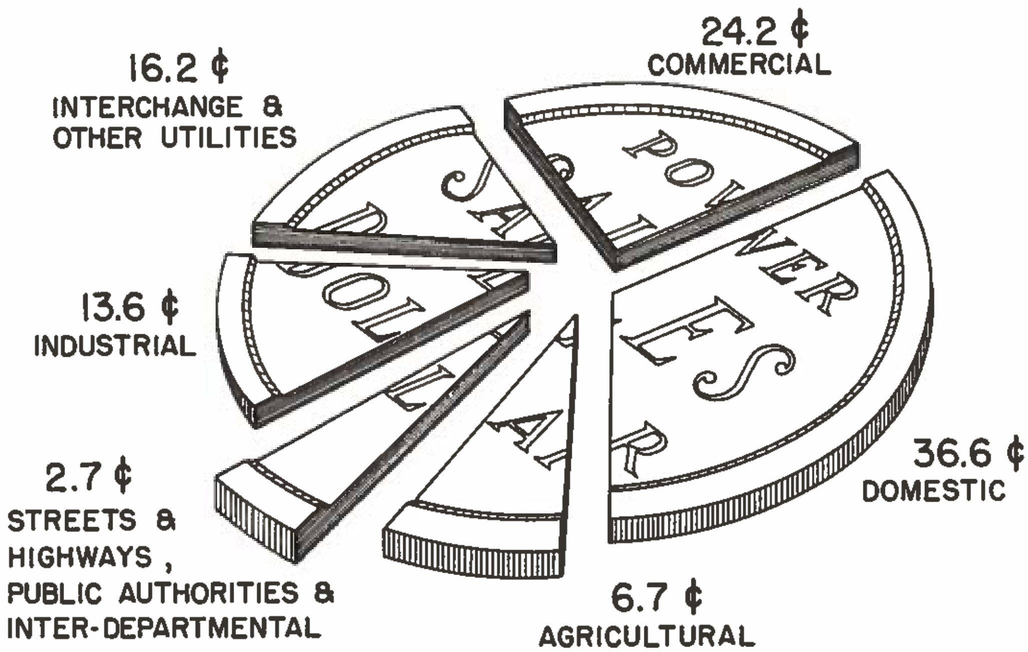
The District Home Economist and the District Home Service Representative co-ordinated their activities to tie in closely with the over-all promotional program by direct participation in the public demonstrations mentioned previously, and by supplemental instruction sessions conducted at various high schools throughout the area. This unit also prepared material for newspaper columns dealing primarily with cooking, recipes, and tips on home-making, in addition to answering requests received by mail and telephone for information and assistance regarding the preparation and storing of food, planning of kitchens, and operations and maintenance of electrical appliances.

On-the-job-training classes were conducted for District personnel on various phases of the business. Power sales representatives received information on the new quick recovery water heaters and the Heat Pump.

IMPERIAL IRRIGATION DISTRICT

Power Sales 1959

TO ULTIMATE CONSUMERS :		
DOMESTIC	$ 3,171,888	36.6 %
COMMERCIAL	$ 2,096,404	24.2 %
INDUSTRIAL	$ 1,179,097	13.6 %
AGRICULTURAL	$ 575,175	6.7 %
STREETS & HIGHWAYS, PUBLIC AUTHORITIES & INTER-DEPARTMENTAL	$ 238,227	2.7 %
	$ 7,260,793	83.8 %
INTERCHANGE & OTHER UTILITIES	$ 1,404,814	16.2 %
TOTAL	$ 8,665,607	100.0 %



Finance and

RICHARD B. BRISSENDEN
Controller

CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES AND NET WORTH

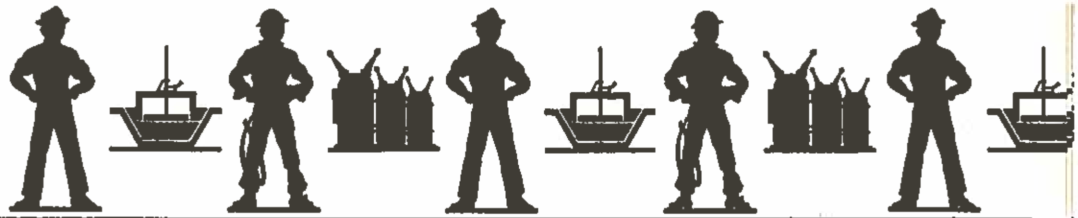
December 31, 1959

(Interdepartmental Accounts Eliminated)

ASSETS		
Funds for:		
Operation and Maintenance		$ 5,386,774
Payment of Bond Principal and Interest		3,851,695
New Construction		1,319,180
Other Special Funds		2,184,625
Total Funds, Including $1,724,800 Invested in U.S. Bonds and Treasury Certificates		$ 12,742,274
Accounts Receivable and Current Assessments		1,571,635
Materials and Supplies		1,045,510
Delinquent Assessments on Tax Deed Land		75,916
Advances on All-American Canal Contract		345,385
Deferred Charges and Prepaid Expenses		707,979
Properties (Water and Power Systems)		102,086,157
Total Assets		$118,574,856
LESS LIABILITIES		
Current Liabilities	$ 1,450,759	
Outstanding Bonds	37,643,500	
Unpaid Warrants	2,284	
Deferred Contract Installments	20,567,518	
Reserves	121,162	
Deferred Credits	1,822,248	
		$ 61,607,471
NET WORTH—From Operations	$ 50,826,721	
Contributed	6,140,664	56,967,385
Total Liabilities and Net Worth		$118,574,856

The Net Worth is 48% of Total Assets

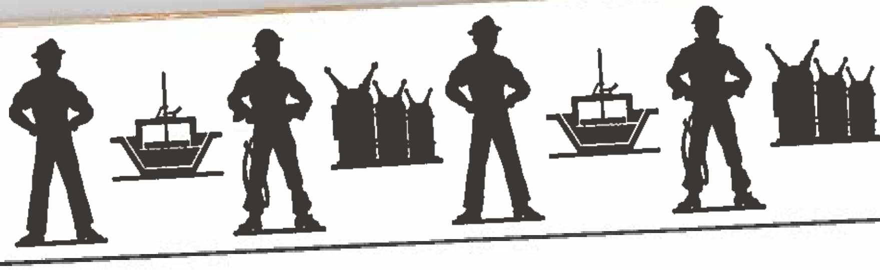
Accounting



COMPARATIVE INCOME AND EXPENSE STATEMENT AND BALANCE SHEET

WATER DEPARTMENT*	1959	Over 1958	Under 1958
Operating Revenue	$ 5,858,459	$ 227,151	
Operating Deductions	3,489,476	59,643	
Operating Income	$ 2,368,983	167,508	
Other Income	93,945	34,327	
Gross Income	$ 2,462,928	201,835	
Income Deductions	280,782		$ 18,389
Net Income, or Current Earned Surplus	$ 2,182,146	220,224	
Balance Sheet			
Current Assets	$ 4,146,054	$ 316,485	
Investment and Fund Accounts	2,077,969	274,976	
Fixed Assets	53,486,363	972,966	
Other Assets and Deferred Charges	520,565	52,377	
Investment in Subsidiary Mexican Company	7,945,399		
Total Assets	$68,176,350	1,616,804	
Current Liabilities	$ 679,143	$ 23,738	
Long-Term Liabilities	27,164,496		$830,600
Deferred Credits and Reserves	1,660,860		23,889
Surplus	38,671,851	2,447,555	
Total Liabilities and Surplus	$68,176,350	1,616,804	
POWER DEPARTMENT:			
Operating Revenue	$ 8,727,798		$273,543
Operating Deductions	6,034,884		44,984
Operating Income	$ 2,692,914		228,559
Other Income	188,103	$ 68,381	
Gross Income	$ 2,881,017		160,178
Income Deductions	954,648		32,105
Net Income, or Current Earned Surplus	$ 1,926,369		128,073
Balance Sheet			
Current Assets	$ 5,712,472	$ 548,940	
Investment and Fund Accounts	4,194,091	324,465	
Fixed Assets	47,134,010	67,987	
Other Assets and Deferred Charges	354,623		124,214
Total Assets	$57,395,196	817,178	
Current Liabilities	$ 799,323		$ 59,238
Long-Term Liabilities	31,385,022		888,600
Deferred Credits and Reserves	282,324		31,450
Surplus	24,928,527	1,796,466	
Total Liabilities and Surplus	$57,395,196	817,178	

*Does Not Include Accounts of Subsidiary Company in Mexico.



Finance and

FUND BALANCES — DECEMBER

	December 31 1959	December 31 1958	Increase or Decrease*
WATER OPERATING FUNDS:			
Assessments Collected for Following Year	$ 377,767	$ 371,953	$ 5,814
Other Cash Balances	1,656,253	1,128,184	528,069
Total Cash and Fund Balances	$ 2,034,020	$ 1,500,137	$ 533,883
COMPANIA OPERATING FUNDS: (1)			
Compañia General Fund—Fund Balances	$ 20,097	$ 33,182	($ 13,085)
WATER BOND AND WARRANT FUNDS:			
Assessments Collected for Following Year	$ 530,813	$ 524,110	$ 6,703
Other Cash Balances	345,416	411,427	(66,011)
Total Cash Balances	$ 876,229	$ 935,537	($ 59,308)
Less Unpaid Matured Principal and Interest	(48,408)	(47,905)	(503)
Less Interest Maturing Next January 1	(133,509)	(143,692)	(10,183)*
Less Bonds Called for Redemption Next January 1	(155,000)	(176,000)	(21,000)*
Total Fund Balances	$ 539,312	$ 567,940	($ 28,628)
DRAINAGE FUND:			
Assessments Collected for Following Year	$ 122,725	$ 121,035	$ 1,690
Other Cash Balances	192,975	227,104	(34,129)
Total Cash and Fund Balances	$ 315,700	$ 348,139	($ 32,439)
MISCELLANEOUS WATER FUNDS:			
Total Cash and Fund Balances	$ 1,407,562	$ 1,077,938	$ 329,624

1, 1959, AND DECEMBER 31, 1958

	December 31 1959	December 31 1958	Increase or Decrease*
POWER OPERATING REVENUE FUNDS:			
Fund Balances	$ 3,702,657	$ 3,182,327	$ 520,330
POWER BOND FUNDS:			
Cash Balances	$ 2,798,700	$ 2,798,820	($ 120)
Less Unpaid Matured Principal and Interest	(25,942)	(24,885)	(1,057)
Less Interest Maturing Next January 1	(455,860)	(469,935)	(14,075)*
Less Bonds Maturing Next January 1	(435,000)	(425,000)	(10,000)
Fund Balances	$ 1,881,898	$ 1,879,000	$ 2,898
POWER CONSTRUCTION FUNDS:			
Fund Balances	$ 569,622	$ 459,410	$ 110,212
MISCELLANEOUS POWER FUNDS:			
Fund Balances	$ 1,387,687	$ 1,186,741	$ 200,946
ALL FUNDS:			
Assessments Collected for Following Year	$ 1,031,305	$ 1,017,098	$ 14,207
Other Cash Funds	12,080,969	10,505,133	1,575,836
Total Cash Balances	$13,112,274	$11,522,231	$1,590,043
Less Bond Principal and Interest Matured or Due January 1	(1,253,719)	(1,287,417)	(33,698)*
TOTAL FUND BALANCES	$11,858,555	$10,234,814	$1,623,741

( ) Deduction

* Decrease

(1) Funds of Subsidiary Company in Lower California, Mexico

Note: Cash and Fund Balances includes securities held.

Finance and

CONSOLIDATED REVENU
IMPERIAL IRRIGATION DISTRICT AND COMPANIA
(January 1, 1959

REVENUE	Consolidated	Imperial Irrigation District Power Dept.	Imperial Irrigation District Water Dept.	Compania Water
OPERATING REVENUES:				
Realized Revenue from:				
Current Year Assessments	$ 1,456,679		$ 1,456,679	
Penalties and Costs on Assessments	3,586		3,586	
Redemption of Delinquent Assessments	42,160		42,160	
Interest Collected on Redemptions	4,306		4,306	
Total Collected by Assessor-Collector	$ 1,506,731		$ 1,506,731	
Sales of Land Held under Assessment Deeds	11,590		11,590	
Equivalent of Current Assessments on Tax Deed Land	573		573	
Rental of Land Held under Assessment Deeds	507		507	
Interest on Land Sales Contracts	1,738		1,738	
Total Revenues Derived from Assessments	$ 1,521,139		$ 1,521,139	
Water Sales	$ 4,170,462		$ 4,022,451	$ 148,011
Gate Service Charges	61,255		61,255	
Pipe Service Charges	38,938		38,938	
Rental of Buildings	101,005	$ 52,304	48,701	
Rental and Sales of Operative Land	8,204		8,204	
Rental of Equipment	25,750		25,750	
Contributions for Operation and Maintenance of All-American Canal	120,724		120,724	
Sales of Rock	610		610	
POWER SALES:				
Residential or Domestic Sales	$ 3,171,888	$ 3,171,888		
Rural Sales—Agricultural Power	575,175	575,429		
Commercial Sales	2,096,404	2,096,396		
Industrial Sales	1,179,098	1,178,852		
Public Street and Highway Lighting	75,572	75,572		
Other Sales to Public Authorities	88,191	88,191		
Sales to Other Electric Utilities	1,198,288	1,198,288		
CEP Co.—Interchange Power	206,527	206,527		
Interdepartmental Sales	74,464	74,464		
Total Power Sales	$ 8,665,607	$ 8,665,607		
Miscellaneous Revenue	20,574	9,887	$ 10,687	
TOTAL OPERATING REVENUES	$14,734,268	$ 8,727,798	$ 5,858,459	$ 148,01

ND EXPENSE STATEMENT
ERRENOS Y AGUAS DE LA BAJA CALIFORNIA, S.A.
ecember 31, 1959)

REVENUE	Consolidated	Imperial Irrigation District Power Dept.	Imperial Irrigation District Water Dept.	Compania Water
Total Operating Revenue—Brt. Fwd.	$14,734,268	$ 8,727,798	$ 5,858,459	$ 148,011
OPERATING REVENUE DEDUCTIONS:				
Operating Expenses:				
Oper. and Maint. of Water System	$ 2,740,424		$ 2,583,564	$ 156,860
Oper. and Maint. of All-American Canal	670,212		670,212	
Oper. and Maint. of Imperial and Laguna Dams	34,167		34,167	
Oper. and Maint. of Power System:				
Production Expenses	1,585,589	$ 1,585,589		
Power Purchased	700,088	700,088		
CEP Co.—Interchange Power	351,679	351,679		
Transmission Expenses	164,875	164,875		
Distribution Expenses	567,305	567,305		
Accounting and Collect. Expense	268,300	268,300		
Sales Promotion Expenses	104,805	104,805		
Administrative and General Exp.	582,755	582,755		
Total Power Oper. and Maint.	$ 4,325,396	$ 4,325,396		
Miscellaneous Expenses	7,094		7,094	
Total Operating Expenses	$ 7,777,293	$ 4,325,396	$ 3,295,037	$ 156,860
Depreciation of:				
Equipment and Facilities	$ 35,157		$ 33,185	$ 1,972
Buildings	36,019		36,019	
Power System	1,664,242	$ 1,664,242		
Amortization of Canal System and Defense Works, Mexico	145,556			145,556
Amort. of Plant Acquisition Adj.	35,967	35,967		
Losses on Sales and Retirements of Assets	123,887		123,835	52
Taxes	11,934	9,279	1,400	1,255
Total Oper. Revenue Deductions	$ 2,052,762	$ 1,709,488	$ 194,439	$ 148,835
Net Operating Revenue	$ 4,904,213	$ 2,692,914	$ 2,368,983	$ 157,684*
OTHER INCOME:				
Interest on U.S. Securities	$ 45,872	$ 43,382	$ 2,490	
Interest on Bank Deposits	209,684	144,721	64,963	
Miscellaneous Interest	26,492		26,492	
Total Other Income	$ 282,048	$ 188,103	$ 93,945	
GROSS INCOME	$ 5,186,261	$ 2,881,017	$ 2,462,928	$ 157,684*
INCOME DEDUCTIONS:				
Interest on District Bonds	$ 1,192,479	$ 918,745	$ 273,734	
Amortization of Debt Discount	7,048		7,048	
Lease of Power Rights	35,903	35,903		
Total Income Deductions	$ 1,235,430	$ 954,648	$ 280,782	
NET INCOME—EARNED SURPLUS, CURRENT YEAR	$ 3,950,831	$ 1,926,369	$ 2,182,146	$ 157,684*

*Deficit

Operations and

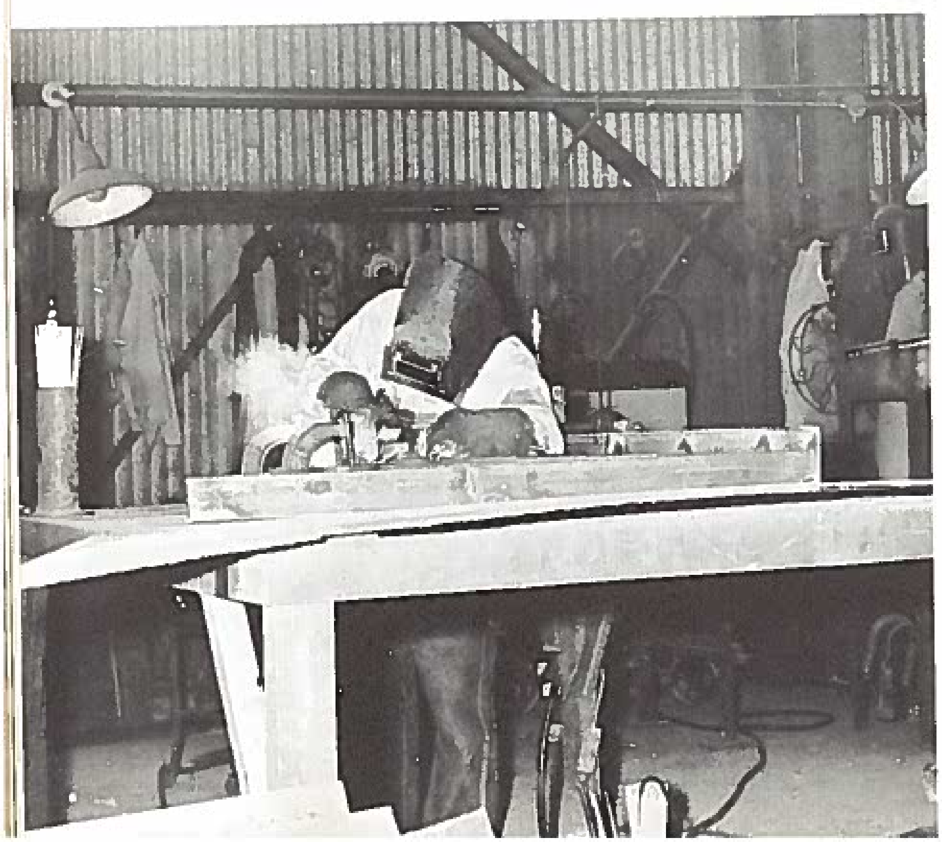
ROBERT D. REYNOLDS
Department Manager

The Operations Services Department, which includes the Purchasing, Stores, Mechanical, Right-of-Way, and Building and Grounds sections, provides the operating departments with specialized services supplementary to their basic function.

During 1959, the Purchasing Section made purchases in excess of $2,700,000 in providing materials required for specific jobs and for replacement items required to maintain predetermined stock levels. Of the total sum spent for those purposes, approximately $1,930,000 represented purchases from vendors within the Imperial Irrigation District service area.

The Stores Section maintained a stock with a combined total of well over 11,000 various items reflecting an average monthly inventory value of $326,967 in General Stores, $550,580 in Power Stores, and $128,409 in Power Fuel Stores.

The Mechanical Section, comprised of the Auto Shop, Machine Shop, Equipment Shop, Transportation Unit, and Service Station, serviced and maintained a fleet of 428 vehicles of various types which traveled over 4 million miles during 1959 at an average cost of 13.36 cents per mile, including operation, maintenance, and depreciation. This section also maintained the District's fleet of heavy equipment including 18 draglines, 3 motor patrols, 3 transit cranes, 11 angle dozers, and 4 Ruth dredges with a total of more than 53,000 equipment operating hours recorded at an hourly cost of $13.76 including operation, maintenance, and depreciation.



Completely equipped shops in the mechanical section provide necessary logistics to keep a continuous flow of water and power to Imperial and Coachella Valleys.

Services Department

Preventive maintenance of District vehicles assures maximum use at minimum cost.

A new two bedroom house under construction for use by the Hydrographer at the Dahlia Check, located southwest of El Centro.

Foreign Training Activities

The Governor of Casablanca visits one of the District's installations.

During 1959, more than three hundred visitors from thirty-three foreign countries visited Imperial Valley to study and observe District facilities and installations. Those engineers, agricultural technicians, and administrators were brought to this country under the auspices of several Federal agencies providing technical assistance to nations throughout the world.

An Australian educator, his wife, and officials of Agricultural Research Service, U.S. Department of Agriculture, receive detailed information on operation of desilting basins at Imperial Dam.

Visitors from Union of South Africa, Turkey, and Egypt pause in front of one of the District's "Welcome" signs located on U.S. Highway 80 near the Sand Dunes at Gray's Well.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREIGN AGRICULTURAL SERVICE
WASHINGTON 25, D. C.

AIRMAIL

May 5, 1960

Mr. John M. Bryant, President
Board of Directors
Imperial Irrigation District
P. O. Box 499
El Centro, California

Dear Mr. Bryant:

I want to express my appreciation to you for the fine cooperation extended by the Imperial Irrigation District in providing opportunities for visiting foreign technicians to discuss and observe the complex operations of one of the largest and best known irrigation districts in the United States.

This special training of technicians from other countries in the planning of sound irrigation developments is a very important phase of our nation's efforts to promote the economic potential of less developed countries. It is most useful for them to observe the organization of operating districts and the problems confronted in the operation and maintenance of a large irrigation district. The farmers problems within the district are also of special interest to our visitors.

Your organization has shared in the training of a large number of groups and individual technicians. On numerous occasions visiting foreign agriculturists who have had the opportunity to study the operation of the Imperial Irrigation District have commented to us here in Washington on the excellent guidance provided to them by your organization.

May I take this opportunity to express formally to you my appreciation for the voluntary assistance provided by your organization in technical training activities and the results achieved in the establishment of good personal relationships between Americans and our visitors from foreign countries.

Sincerely yours,

A. J. Nichols

A. J. Nichols
Acting Director
Foreign Training Division