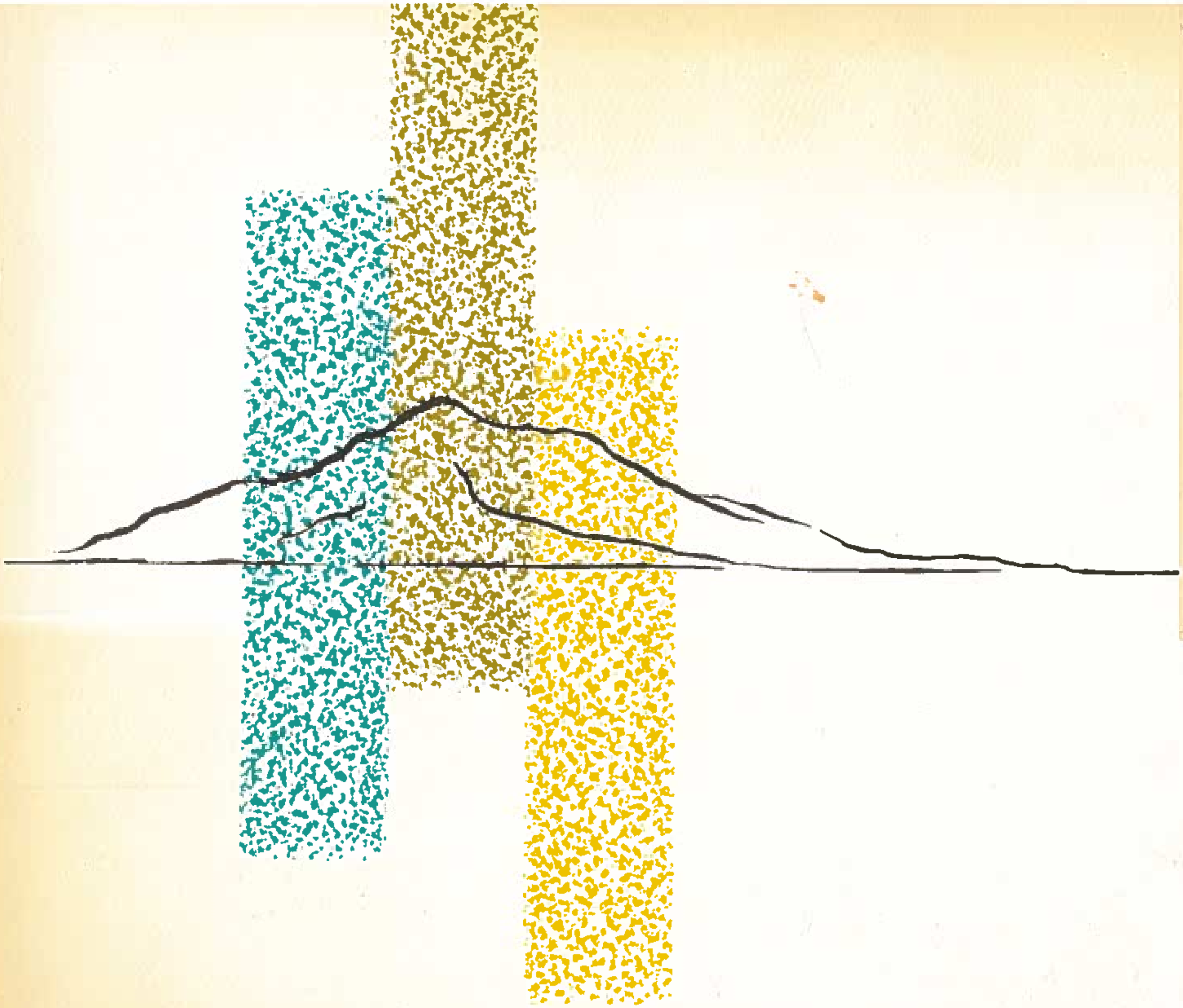


We proudly present our 50th Anniversary Annual Report for 1960

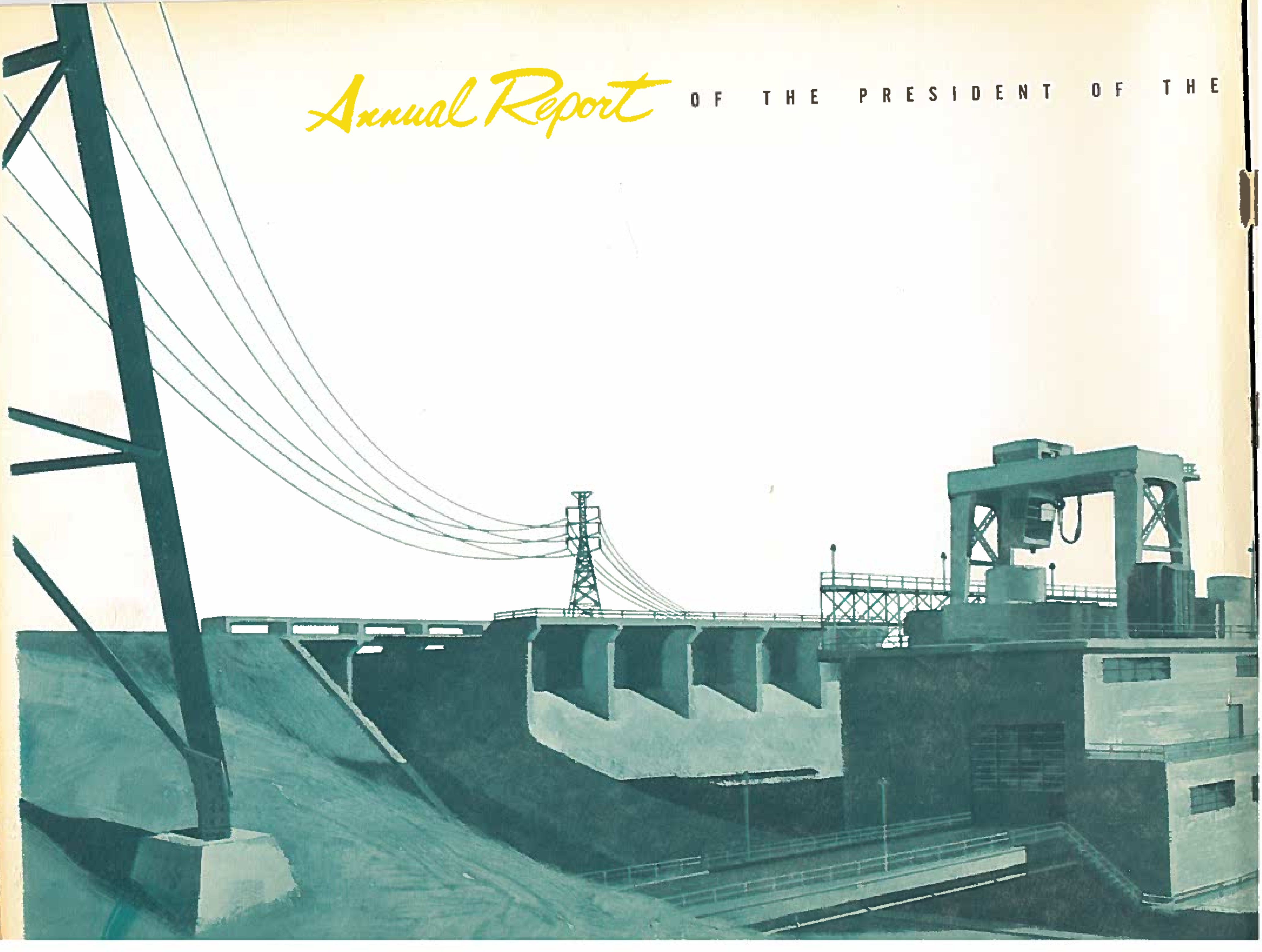
This report was awarded Second Place in the Nationwide Annual Report Contest of the American Public Power Association

IMPERIAL IRRIGATION DISTRICT

1960 Annual Report

IMPERIAL IRRIGATION DISTRICT

Annual Report OF THE PRESIDENT OF THE



As we enter our second half century of service, the accomplishments of our first 50 years serve as an inspiration for the future. Our modern irrigation system — the largest in the Western Hemisphere — stands as a tribute to the wisdom, vision and knowledge of the many persons who have participated in its development over the years.

Of equal importance was the decision to enter the electric power business 25 years ago. Today, the power system provides dependable electric energy not only to Imperial Valley, but also to the Bard-Winterhaven area near the Colorado River and to a major portion of the fast-growing Coachella Valley.

Contents

BOARD OF DIRECTORS

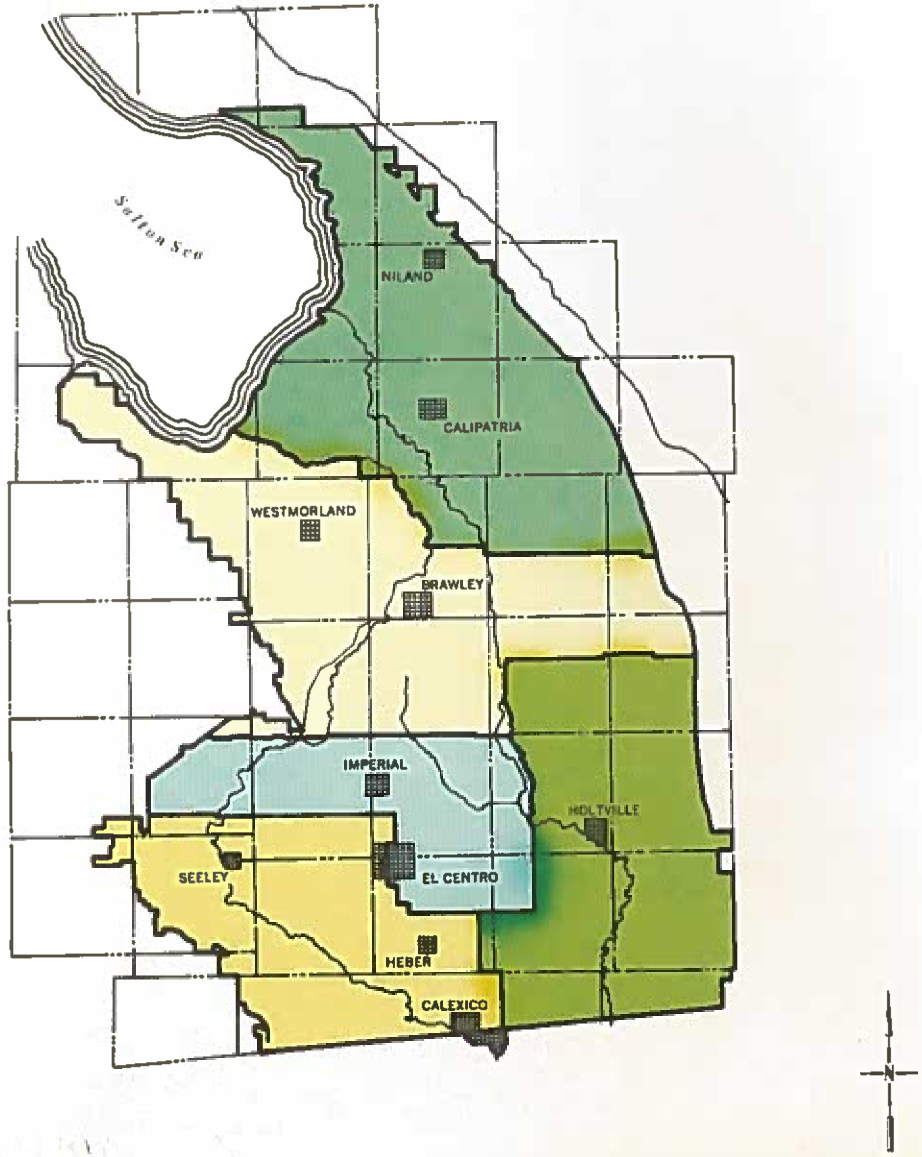
John M. Bryant, President
DIVISION 3

Paul A. Mitchell
DIVISION 4

Carl C. Bevins
DIVISION 5

Joseph D. Moore
DIVISION 2

Raymond L. Thompson
DIVISION 1



PRESIDENT'S LETTER

DISTRICT STAFF

Operations Section

ROBERT F. CARTER
General Manager

OSCAR L. FUDGE, Manager
Water Department

J. FRED HESSE, Manager
Power Department

ROBERT D. REYNOLDS, Manager
Operations Services Department

C. JAMES LLOYD, Manager
Personnel Department

JACK B. BROCKETT
Controller

Executive Section

M. J. DOWD, Executive Officer
to the Board of Directors

WILLIAM J. STADLER
Public Information Officer

BURTON H. BIDWELL, Secretary
to the Board of Directors

HARRY W. HORTON
Chief Counsel

WALTER E. LANCASTER
Assessor-Collector

ANNA T. McMANUS
Treasurer

IMPERIAL IRRIGATION DISTRICT

ORGANIZED JULY 25, 1911

COMPRISING [illegible] ACRES

EL CENTRO, CALIFORNIA

TELEPHONE: EL CENTRO ELGIN 2-3551
TWX: IMPERIAL CAL 6576

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 Directors of the District
and to All the People We Serve

Fifty years ago, the District bought out the private company delivering water to Imperial Valley.

Twenty-five years ago, the District began serving the Valley with electric power.

So it is on this, the District's Golden and Silver Anniversaries, I take a special measure of pride and accomplishment as President of the Board in submitting to you now the Annual Report covering the District's operations during the calendar year 1960.

I am confident that all of you will fully visualize and appreciate, as I do, the intense and sustained efforts of a great many people to raise the water and power systems to maximum efficiency, to maintain and further a high standard of service, and to constantly stimulate the growth and progress of the District, all of which is mirrored by the impressive facts and figures contained in this report.

I wish to express my sincere appreciation to the management and personnel of the District, who have served the public with such loyalty and devotion, and especially to the people of the Imperial and Coachella Valleys, whose strong support and willing co-operation have made this progress possible.

John M. Bryant

JOHN M. BRYANT, President
Board of Directors

JOHN M. BRYANT
President of the Board

PRESIDENT'S REPORT

Fifty years ago when the District entered the water business our major responsibility was transportation of silt laden water from the Colorado River through a canal system with most of its length in Mexico to thirteen mutual water companies responsible for distribution to farmers in the Imperial Valley.

In 1922, by purchase of mutual water companies, the District became responsible not only for transportation but also the ultimate distribution of water to the farms, cities and towns in the area.

The passage of the Boulder Canyon Project Act by the United States Congress in 1928 assured a stable supply of desilted water when Hoover Dam and the All-American Canal were completed.

In 1942 the All-American Canal became the sole source of water for the Imperial and Coachella Valleys. During 1960 a total of 5,818,257 acre-feet of water was diverted from the Colorado River at Imperial Dam . . . 153,722 tons of sediment removed . . . and 5,644,980 acre-feet entered the 80 mile long All-American Canal.

In addition to water for use in Imperial Valley, the All-American Canal transports water for Yuma Project, Mexican Treaty Water passing through Pilot Knob Hydro Electric Plant, and Coachella Valley.

When it became apparent that the All-American Canal would become a reality, the District's entry into the power business was an obvious step using hydro-electric potentials of the gravity flow canal. Thus, in May 1936, the District entered the power business. The first power plant, a diesel unit, was built in Brawley and placed in service at that time.

By 1943 the power system included all of Imperial Valley and the major portion of Coachella Valley, the District having acquired properties of a private power company in these areas.

In 1960 the District served a geographical area larger than the combined states of Connecticut and Rhode Island. Revenue from the sale of electric energy totaled $9,228,204, representing an increase of $562,596 over 1959.

In an era of increased costs, we are especially proud of the fiscal operation of the District during 1960. The Board of Directors authorized a budget of $14,723,875 for the year. However, due to effective management and efficient operation, $13,442,239 was expended, reflecting a budget saving of $1,231,636.

August 1960 marked the completion of an era when the Compañia de Terrenos y Aguas de la Baja California, originally formed to operate and maintain the canal system and flood protection works in Mexico, entered liquidation.

December 1960 marked the beginning of another era when the Board of Directors concluded a 99 year lease to a Texas firm to explore the potential of several thousand acres of District-owned lands for a source of natural steam for use in electrical generation. The first of a series of steam wells will be completed in January 1961.

According to the lease, the District has first right to buy all steam and electricity produced by the firm in Imperial County. In addition, the lease provides that the District will receive royalties on minerals of commercial value recovered from the steam.

John M. Bryant

ROBERT F. CARTER
General Manager

GENERAL MANAGER'S STATEMENT

Our 1960 Annual Report represents not only a record of the operational and fiscal accomplishments for the past 12 months, but, in addition, this report is the story of the first 50 years' growth of the largest irrigation district in the Western Hemisphere.

Through the years the District has grown to meet the changing needs of the people it serves, and worked diligently to provide the best possible service at all times in both the transportation and distribution of water and generation, transmission and distribution of electric energy.

It is significant that within the past few years many of the capital expenditures for expansion of both the water and power systems have been financed from revenue, including the $6,396,184 – 44,000 KW generating unit at the El Centro Steam Generating Plant and the $1,100,000 Rositas Supply Canal. The $506,000 combination Water Control Structure and Hydro Plant, an automatically operated 800 kilowatt capacity unit, and an additional $974,000, 161 KV transmission line to serve the Coachella Valley will be completed in 1961 – both will be financed from revenue.

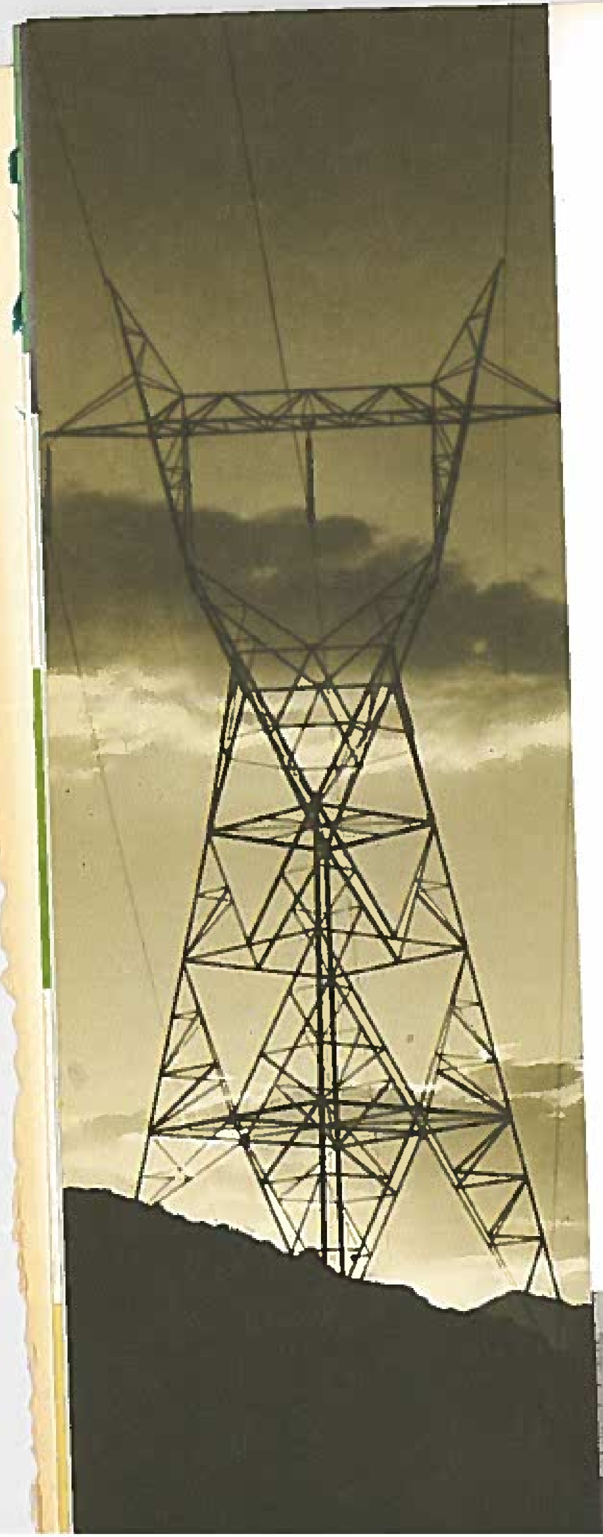
Revenue from sales of electric energy set a new record of $9,228,204 – an increase of $562,596 over 1959. Sales to ultimate customers were even more impressive, reflecting an increase of $721,334 over 1959.

Total electrical sales increased from 569,884,754 kilowatt-hours in 1959 to 585,529,375 kilowatt-hours. Sales to ultimate customers increased 8.4 per cent. Average annual kilowatt-hour usage by residential customers was 7,294, an increase of 591 kilowatt-hours. National average domestic consumption in 1960 was 3,815 kilowatt-hours.

Where possible, machines and automatic operations have been installed in all departments for increased efficiency and greater economy.

I express my sincere appreciation to the Board of Directors, the Department Heads, and all employees for their cooperation, loyalty and effort during the past year.

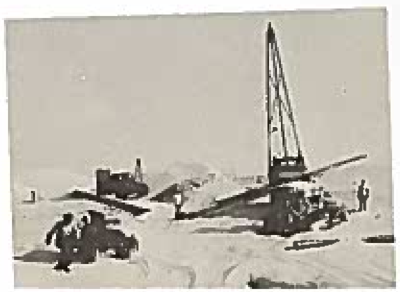
R. F. Carter



POWER

THE DISTRICT'S POWER DEPARTMENT EARNED		$ 9 537 125
FROM: Power Sales	$ 9 228 204	
Interest on Reserves	218 310	
Rental of Electric Property	78 211	
Other Sources	12 400	
WHICH WAS USED OR SET ASIDE FOR:		
Operating Expenses	4 721 756	
Interest on Bonds	889 970	
Lease of Power Rights	22 677	
Taxes	16 163	
Accounting for Operating Expenses and Income Deductions of	$ 5 650 566	
Leaving Net Earnings of	3 886 559	
WHICH WERE USED FOR:		
Retirement of Electric Revenue Bonds	975 000	
Additions to Plant	1 218 342	
Payment into Bond Reserve Funds	99 940	
Payments into Special Electric Plant Construction Fund	806 351	
Additions to Other Reserve Funds	244 685	
Deposit with the United States on All-American Canal Contract	121 188	
Additions to Operating Funds	421 053	
	$ 3 886 559	
WHICH ACCOUNTS IN FULL FOR		$ 9 537 125

Underground distribution
La Quinta — Coachella Valley



Powerline relocation —
New U. S. Highway 80 in Sand Hills

W A T E R

THE DISTRICT'S WATER DEPARTMENT EARNED		$ 6 254 239
FROM: Assessments, Penalties and Costs	$ 1 501 539	
Sales and Rentals of Land Held Under Assessment Deeds	5 091	
Interest on Redemption of Delinquent Assessments	5 540	
Water Deliveries, Gate and Pipe Service Charges	4 402 831	
Interest on Reserves	137 003	
Rental of Land, Buildings and Equipment	79 677	
Other Sources	122 558	
WHICH WAS USED OR SET ASIDE FOR:		
Operating Expense	3 282 167	
Interest on Bonds	253 008	
Taxes	2 657	
Accounting for Operating Expenses and Income Deductions of	$ 3 537 832	
Leaving Net Earnings of	2 716 407	
WHICH WERE USED FOR:		
Retirement of Bonds	578 000	
Additions to Canal System	839 404	
Additions to Drainage System	496 771	
Additions to Buildings and Land	54 723	
Payments into All-American Canal Emergency and Replacement Fund	89 007	
New Equipment	257 365	
Additions to Operating Funds	401 137	
	$ 2 716 407	
WHICH ACCOUNTS IN FULL FOR		$ 6 254 239

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

Sandblasting and painting —
Radial gates in All-American Canal

Alamo River Drop No. 3 —
Erosion Control structure

WALTER E. LANCASTER
Assessor-Collector

ASSESSOR-COLLECTOR'S OFFICE

Assessed valuation of land within the boundary of the District increased $50,428 for 1959-60 due to the return of some tax deed land to the assessment rolls and the increased value of reclaimed land. There was no general increase in assessed valuation.

Total valuation for the assessment year was $49,530,730 as compared to $49,480,302 for 1958-59.

Collections totaled $1,442,519.79 – 96.58 per cent of the total assessment – by June 20, the date after which payments for the assessment year became delinquent. The unpaid $51,086.85 – 3.42 per cent of the total – included delinquent assessments, assessments, and unpaid balances.

This delinquency represents the second smallest delinquency in the 50 year history of the District. Last year was the smallest in history with 3.20 per cent. This small delinquency is attributed to a fair equalized assessment and a realistic tax rate.

The assessment rate of $3.00 per $100 valuation – first established by the Board of Directors for the year 1949-50 – was again fixed by the Board for the 1959-60 assessment year.

This rate included the portion necessary to meet the Irrigation Budget of $5,853,275 for the 1960 calendar year.

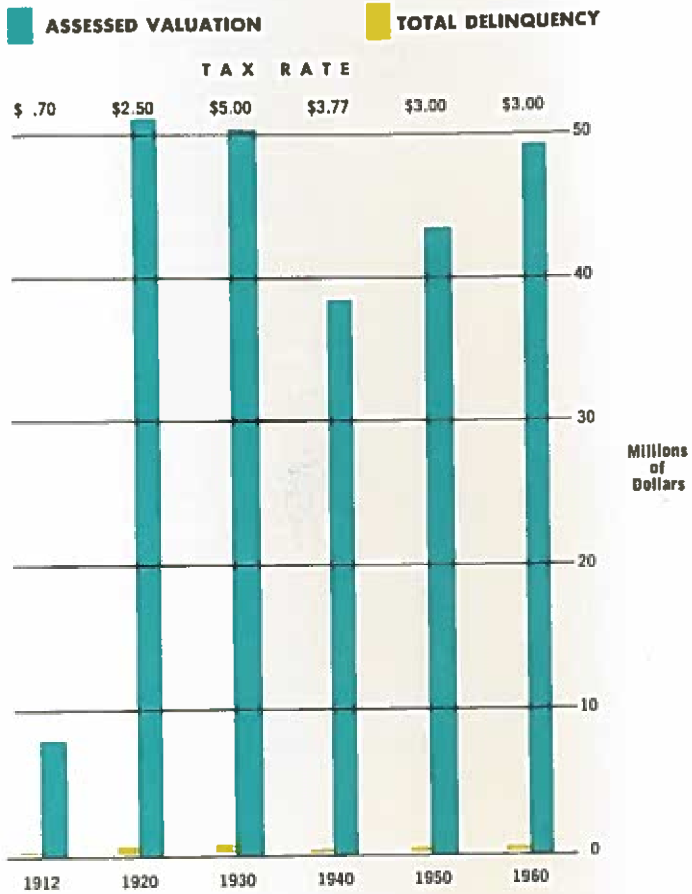
As required by the Water Code of the State of California a 15 per cent deduction for anticipated delinquencies was applied to the equalized aggregate assessed value of $49,530,730. Thus the net equalized assessed valuation for the year 1959-60 was $42,101,120.

The amount to be raised for the 1959-60 assessment year was classified by the Board of Directors as follows:

Redemption Fund: 15.44 mills on the dollar to raise $650,000 for payment of interest and principal on bonds.

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: 10.99 mills on the dollar to raise $462,691.31. This amount, combined with other revenues, will provide funds to meet estimated current expenses of the District.



ANNA T. McMANUS
Treasurer

TREASURER'S OFFICE

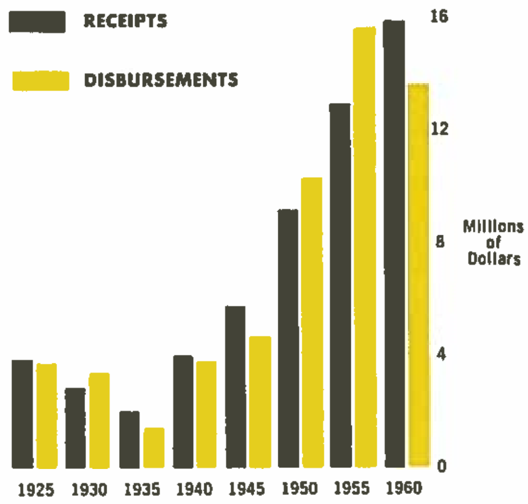
The Treasurer of Imperial Irrigation District, elected by the people within District boundaries, is charged with the responsibility of safeguarding all District funds and, in compliance with the provisions of the Water Code of the State of California, is obligated to furnish an Indemnity Bond guaranteeing 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.

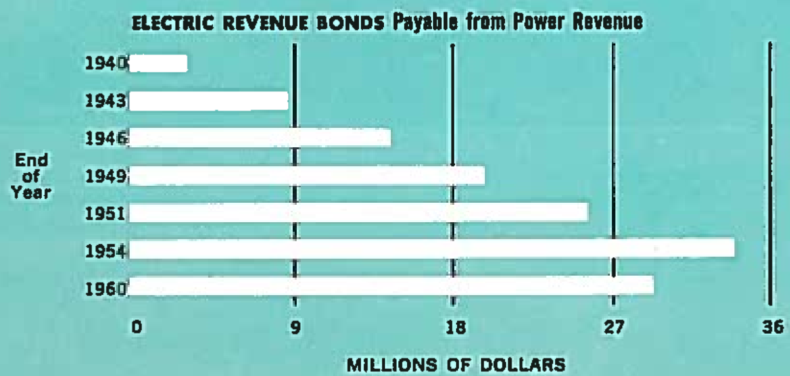
The total annual income from the sale of water and power, assessment collections, and all other sources flows into the Treasurer's Office and is retained in specified funds until such time as legal expenditure is approved by the Board of Directors. Total income of the District during 1960 amounted to approximately $16,000,000, of which $13,899,000 was expended for payment of bond principal, bond interest, District payrolls and expense checks, and Compañia payrolls and expense checks.

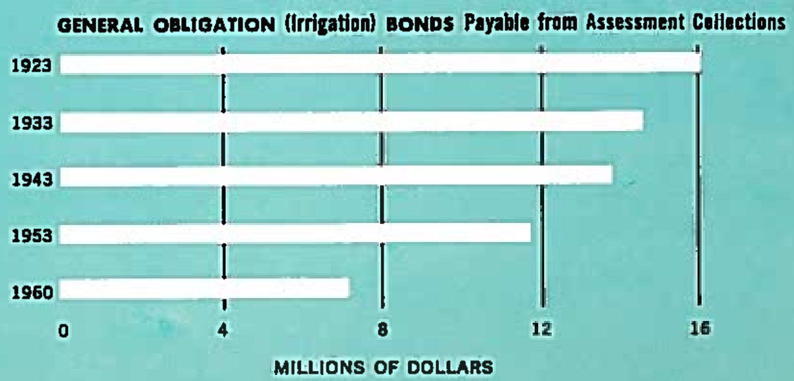
During this year payments amounting to $1,513,000 substantially reduced the bonded indebtedness of the District to a new low of $36,480,000 comprised of $7,312,000 in general obligation bonds and $29,168,000 in electric revenue bonds.

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 $355,313.

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 1960.







M. J. DOWD, Executive Officer
to the Board of Directors

COLORADO RIVER BOARD

GENERAL

The Colorado River Board of California was created by State law in 1937 in connection with California's rights in and to the use of Colorado River water. The Board is composed of one representative, appointed by the Governor, from each of the following agencies having major interests in the River: Palo Verde Irrigation District, Imperial Irrigation District, Coachella Valley County Water District, The Metropolitan Water District of Southern California, San Diego County Water Authority, and the Department of Water and Power of the City of Los Angeles.

During the year, the activities of the Board and its staff continued at an accelerated pace. A brief summary of several of the more important activities follows:

ARIZONA vs. CALIFORNIA

The Special Master, Simon F. Rifkind, issued his draft report, which included his recommended decree, under date of May 5, 1960. It was far different from what California had expected. While the Special Master agreed with California's contentions as to interpretations of the Colorado River Compact, he held that the Compact was irrelevant to the suit and based his proposed decree on findings very different from those contended for by California.

California and other parties in the case submitted comments on the draft report. As requested by California, a hearing before the Special Master was held in New York City in August. As a result, California submitted several motions to reopen the case for further evidence, which were denied by the Special Master.

The Special Master's final report, including his recommended decree, was issued under date of December 5, 1960, and submitted to the Supreme Court. Although a number of minor revisions as compared with his draft report had been made, these did not change the basic points of difference with California's position. If this report is approved by the Supreme Court, it could have disastrous effects in the future on the water supply of California from the Colorado River. At the close of the year, work was underway on the preparation of exceptions to the final report, which will be filed with the Supreme Court.

In order to inform the California delegation in Congress of the Special Master's findings, Congressman D. S. Saund held a conference in Washington, D. C., on June 18, 1960, at which time the possible impact on California was discussed.

FEDERAL LEGISLATION FOR UPPER BASIN PROJECTS

Both the Fryingpan-Arkansas and the Navajo-San Juan-Chama Projects were before the Congress again in the 1960 session. Although hearings were held on these bills, no action was taken by the subcommittee of the House Interior and Insular Affairs Committee. California again submitted proposed amendments designed to protect the interests of this State and other Lower Basin States, which were still pending before the subcommittee at the end of the year.

In addition, bills were introduced to authorize several other Upper Basin Projects, but these did not come up for hearing during the year.

GLEN CANYON FILLING CRITERIA

On January 18, 1960, the Secretary of the Interior released for study and comment by the affected States and agencies, a document entitled "The Proposed General Principles to Govern, and Operating Criteria for, Glen Canyon and Lake Mead during the Glen Canyon Filling Period." It was printed as Senate Document No. 84, 86th Congress, 2d Session. The Board's staff and legal counsel reviewed the proposed criteria and made a large number of engineering studies to evaluate its workability and potential effect on California interests.

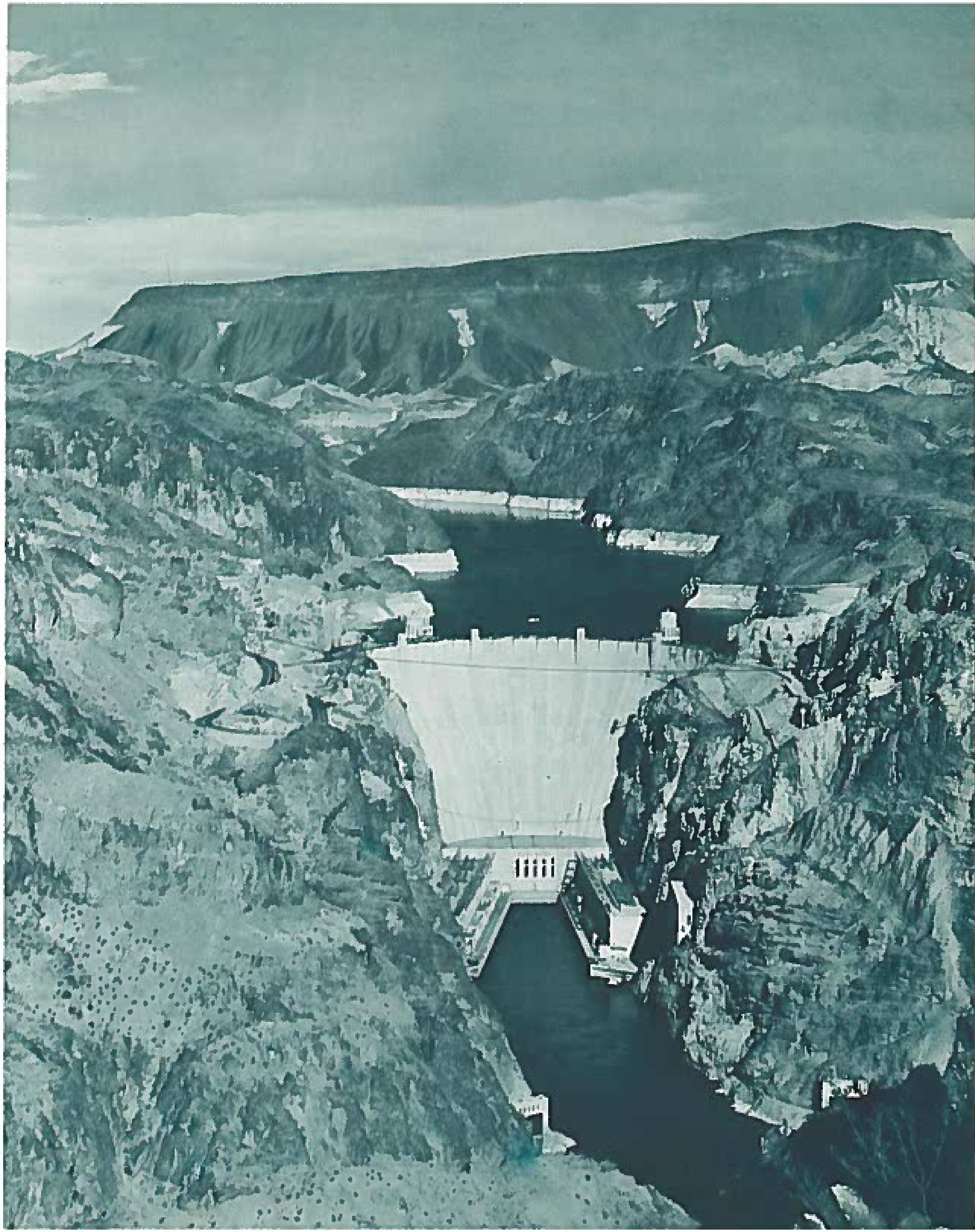
Additional meetings of the Lower Basin Engineering Group were held, at some of which the Bureau of Reclamation was included, relative to the proposed criteria. Analyses and criticisms of the criteria, prepared by the Colorado River Board, were discussed at these meetings. Representatives of the Secretary of Interior gave assurance that these views and proposed revisions would be given consideration. A revised draft of the proposed criteria was promised but had not been received by the end of the year.

BRIDGE-MARBLE CANYON POWER DEVELOPMENTS

The application with the Federal Power Commission, submitted in January 1960 by the Department of Water and Power of the City of Los Angeles, for license to build Bridge Canyon Power Project was fully reviewed by the Board and its staff in comparison with the application filed in 1958 by Arizona Power Authority.

On March 15, 1960, the State of California filed a motion with FPC to suspend action on both applications until after (1) entry of a final decree in Arizona v. California; (2) the issuance by the Secretary of the Interior of final criteria governing

Hoover Dam stores a normal two year Colorado River flow



the filling of Glen Canyon reservoir; and (3) the lapse of a reasonable time to permit consideration by the Congress of pending legislation authorizing Federal construction of a high Bridge Canyon Dam and power plant. This motion was not granted.

Under date of November 23, 1960, the Federal Power Commission, at the request of both the Arizona Power Authority and the City of Los Angeles, ordered postponement of hearings on both applications insofar as they related to Bridge Canyon and set April 6, 1961 for hearing on the portion of Arizona Power Authority's application relating to Marble Canyon Dam and power plant.

MISCELLANEOUS

The court action to evict "squatters" from Federal lands along the lower Colorado River, started last year, continued during 1960. So far, no case has actually been brought up for trial before the courts.

The investigation of water use along the lower Colorado River, which had been requested for several years by the Board, was started during 1960 under the direction of the United States Geological Survey. Offices were established in Yuma, Arizona and the gathering of data was commenced. It is expected this work will require a number of years for completion, but it should be of value in connection with all phases of water use from the lower Colorado River.

As in the past, the Board received very fine co-operation in all of its work from the Department of Water Resources and the Attorney General's office.

HARRY W. HORTON
Chief Counsel

LEGAL DEPARTMENT

The legal problems of the District are handled by the Chief Counsel and two Assistant Counsels. The legal staff represents the Operating Department and the Board of Directors in all legal actions and proceedings for or against the District, and actions in which the District may be legally interested.

The legal department gives legal advice and opinions to the Board of Directors and department heads acting in their official capacity. In addition the legal department handles legal features involved in financing, contracts, acquisition of rights-of-way, purchase and sale of real property, inclusions of territory within District boundaries, and assessments.

Except for litigation in Court, the activities of the legal department are in a large part reflected in the activities of other District departments.

ARIZONA vs. CALIFORNIA

A decision was announced during 1960 in the case of Arizona vs. California, et al, by the Special Master appointed by the United States Supreme Court to hear the case and recommend a decision to the Court. The decision was substantially adverse to the State of California, considered as a whole, because it would limit the use of Colorado River water by California agencies to an amount which is less than has actually been used heretofore.

In the opinion of the Legal Department, the decision may not directly affect the interests of the District for many years. The District's relative priority among California agencies using Colorado River water is high enough so that, even with the limited amount available to all California agencies, no limitation on historical uses is anticipated for the present.

On the other hand, long planned development of additional irrigated areas on the East and West Mesas will in large part be impossible if the announced decision is adopted by the Supreme Court.

The decision of the Special Master is not final but is in the nature of a recommendation to the Supreme Court which may either adopt, reject, or modify it. Objections to the Special Master's decision by all California agencies have been filed in February. Oral and written arguments will be presented to the Supreme Court, probably during the fall of 1961. A final decision of the case by the Supreme Court can be expected some time during 1962.

SALTON SEA DAMAGE CLAIMS

Although the level of Salton Sea has continued to rise slightly each year, no new damage claims have been filed by adjacent property owners against Imperial Irrigation District. The action brought against Imperial Irrigation District and Coachella Valley County Water District by the Desert Beach Corporation and which was tried during 1959 was decided adversely to the Districts during the year.

The damages awarded for flooding of the Desert Beach Corporation property were apportioned between the two Districts on the basis of 61% against Imperial Irrigation District and 39% against Coachella Valley County Water District. This ratio is derived from the respective amounts discharged into the Salton Sea by the two Districts.

It is anticipated that the decision will be appealed by both Districts unless a satisfactory settlement can be negotiated.

MISCELLANEOUS LITIGATION

A wide variety of other litigation was handled by the Legal Department during the year, including condemnation actions, quiet title actions, collection of delinquent power accounts, damage claims with respect to personal injuries, as well as crops and other property, bankruptcy claims involving persons indebted to the District.

The Legal Department screens the Federal legislative work and activities of the National Reclamation Association and works with the Irrigation Districts Association of California and Colorado River Board on State legislative matters.

Assistant Counsels Reginald L. Knox, left, and James H. Carter

WILLIAM J. STADLER
Public Information Officer

PUBLIC INFORMATION OFFICE

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 campaigning 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.

During 1960 the Public Information Office kept the public abreast of District activities through news releases to all media in the service area, and by publication of a four page monthly periodical mailed with power and water bills. In addition, in cooperation with the Personnel Department, a monthly magazine was edited and published for District employees.

A booklet, "Historic Salton Sea", based on a talk by M. J. Dowd, was edited and published in July. Available only on request, the initial printing was exhausted and a second printing necessary before the end of the year. Requests have been filled from firms and interested persons in over forty states and four foreign countries.

Approximately 3,000 information kits containing maps, booklets, and other data on the District were distributed to various individuals, students and firms requesting information on the Valley. A number of requests for specific information were handled.

Community relations included securing speakers and providing programs of general interest for schools, civic and service groups. In this connection an audio-visual library of pertinent material was started with a small collection of sound movies and tape recordings.

The Canal Safety Program, first started in May 1959 in cooperation with the schools, was considerably expanded. The 1960 program, which was cited by Public Relations News, a magazine with national and international circulation, included the presentation of a 30 minute program at every public and private school in Imperial County.

Not only were canal hazards emphasized, but also a prize-winning film on mouth-to-mouth resuscitation was shown. At the end of the summer we were proud of the fact that no Imperial County youngsters lost their lives in our canal system.

An aggressive advertising program, directed primarily toward four major appliances and for the purpose of increasing the off-season consumption of electricity, was conducted throughout the year in cooperation with the Power Sales Section.

Dealers in the service area are notified of the planning and encouraged to tie-in with the program. This program has been in part responsible for increases in the power load factor. Product tie-in displays were installed at both the California Mid-Winter Fair in Imperial and the Riverside County Fair and National Date Festival in Indio.

Over 375 agricultural engineers, irrigation engineers, and government leaders from 35 countries of Africa, Asia, Europe, and South America were referred to this office for local programming during the year. Staying an average of 3½ days in Imperial Valley, the international visitors were referred by the United States Department of State, U. S. Department of Agriculture, Governmental Affairs Institute, and International Cooperation Administration.

OSCAR L. FUDGE
Department Manager

WATER DEPARTMENT

The Water Department is responsible for the operation and maintenance of the District's canal and drainage system and ultimate delivery of water to serve an irrigated area of 468,243 acres of farm land in Imperial Valley. Total area within the boundary of the District is 908,195 acres, including: undeveloped area; cities, towns, airports, feed lots, etc.; area below the −230 foot contour Salton Sea Reserve Boundary, area covered by Salton Sea; and area in canals, drains, rivers and railroads.

Departmental responsibility includes operation and maintenance of the All-American Canal headworks and desilting basins at Imperial Dam, the 80 mile long All-American Canal, 50 miles of the Coachella Branch of the All-American Canal, a 1,666 mile network of main canals and laterals, and a 1,376 mile system of main and lateral drains.

Water carried in the District's canal system serves both agricultural and domestic purposes.

The Water Department organization includes the All-American Canal Section, Water Engineering Section, Drainage Construction and Maintenance Section, North and South-End Irrigation and Drainage Sections, Water Control Section, and Heavy Equipment Operations Section.

There are seven operational divisions responsible for operation and maintenance of the lateral canal and drainage system, as well as ultimate delivery of water to users.

During 1960 there were a total of 444 full-time employees assigned to the Department.

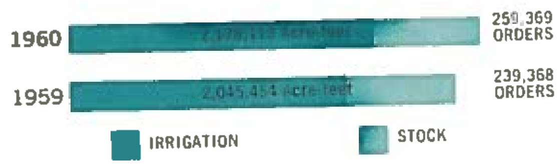
Major improvements to the system during the year included the start of construction of a combination check-hydro-electric plant to replace the existing check structure in the Central Main Canal at the Double Weir; construction of Alamo River Control Drops 3 and 5.

Construction was started and completed on both control structures during the year and work was 50 per cent complete, excluding generating equipment and installation, on the Double Weir plant.

Under the regulation for delivery of water to users instituted in 1956, 86.95 per cent of the total water orders were delivered on the day requested by the user, 12.67 per cent were carried over one day and .38 per cent were carried over two days.

Water delivered to Imperial Valley users totaled 2,178,113 acre-feet, an increase of 132,659 acre-feet.

WATER DELIVERED:



Water diverted at Imperial Dam—metered at Station 60—during 1960 totaled 5,644,980 acre-feet, a decrease of 314,674 acre-feet over 1959. Total diversion through the All-American Canal Headworks was 5,818,257 acre-feet, which included 173,277 acre-feet used in desilting operations.

Water is diverted at Imperial Dam and transported in the All-American Canal not only for Imperial Valley, but also for the Yuma Project, Pilot Knob Hydro-Electric Plant, and for Coachella Valley.

The elevation of the Salton Sea on December 31, 1960 was 233.75 feet below sea level, higher by .55 foot than on the same date the previous year.

Remote control operation of the New River Check and Spillway, Wisteria Check, and West Side Main Check has proven highly successful after two years of operation. During the year remote control facilities were installed at Dahlia Check. Work is in progress to provide for remote control operation of the East Highline Check and Turnout, and at No. 1 check on the East Highline Canal during 1961.

The program of substituting reinforced concrete for inoperative wood structures and deliveries was continued. Approximately 85 per cent of the wooden checks and deliveries have been replaced, and the replacement program should be completed in early 1962.

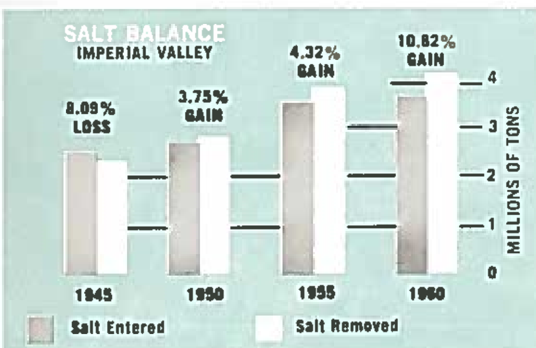
Weed and brush control measures were required on all canals and drains in the system. Burning and three types of chemicals were used according to the type of growth and the season. The principal burning operations were confined to removal of debris following chemical application and on mature annual growth on the channels.

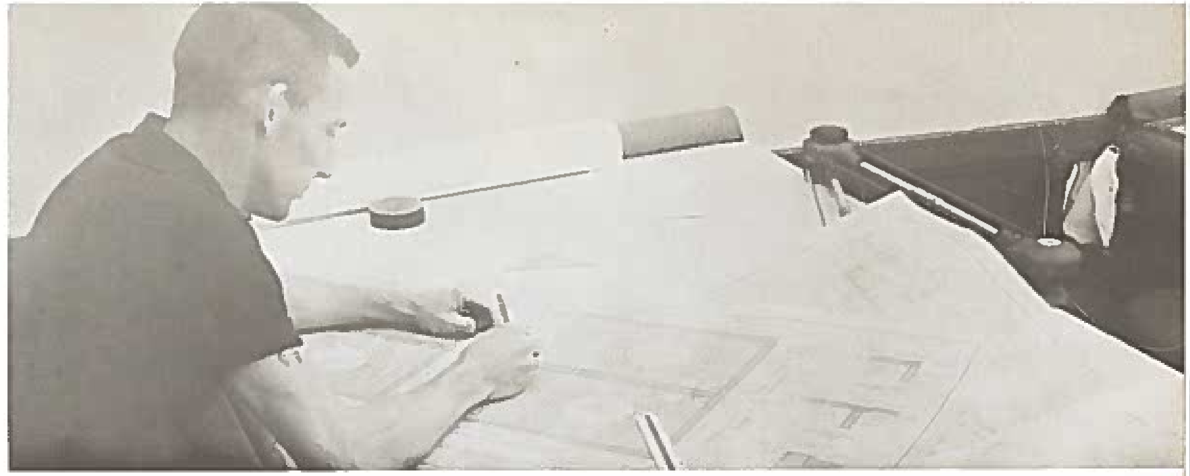
During 1960 a total of 13,617 acre-miles were cleared by District crews, as compared to 13,381 acre-miles in 1959. Weed and brush control operations included: 781 acre-miles by the All-American Canal section; 1,688 acre-miles on main canals; 7,503 acre-miles on lateral canals; 1,251 acre-miles on main drains, and 2,394 acre-miles on lateral drains.

Moss control operations during the year were confined mainly to the lateral canal system, main and lateral drains. During the year a total of 2,628 miles of the system were treated for aquatic growth.

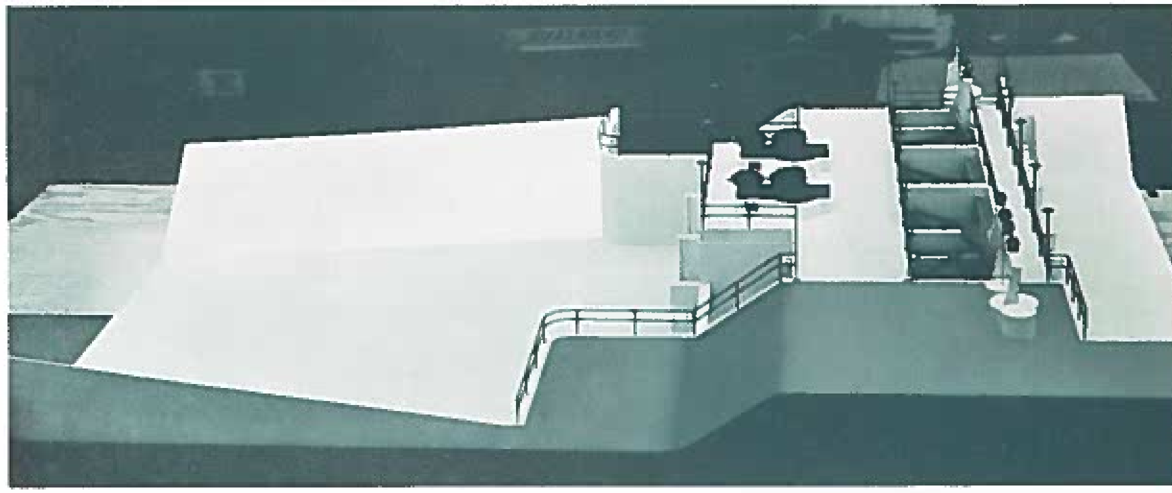
In the lateral canals a total of 763 miles were treated chemically, and 1,018 miles by mechanical equipment. In the drainage system, 360 miles of main drains, and 80 miles of lateral drains were treated chemically, and 85 miles of main drains and 322 miles by mechanical equipment.

During the year there was an apparent gain of 10.52 per cent in the removal of salt through the drainage system.



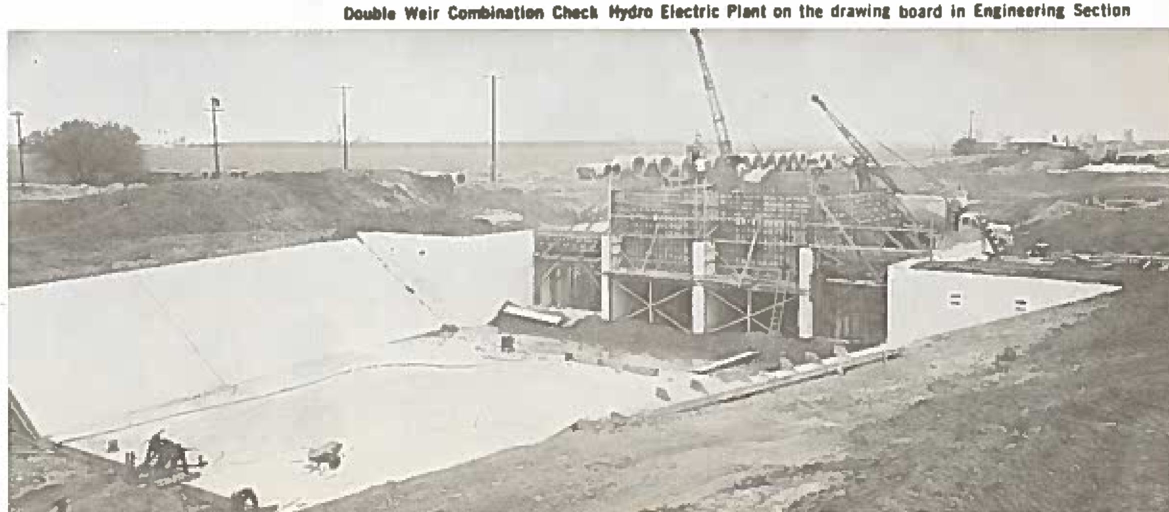


Double Weir Hydro-Plant Check under construction by District crews



Scale model of the Double Weir Hydro-Electric Plant on Central Main Canal designed and built by District crews

Double Weir Combination Check Hydro Electric Plant on the drawing board in Engineering Section



ALL-AMERICAN CANAL SECTION

This section is responsible for operation and maintenance of headworks and desilting basins at Imperial Dam; 131.2 miles of canals including: the entire 79.7 mile length of the All-American Canal; 48.9 miles of the Coachella Branch of the All-American Canal from its turnout structure to 6-A Check; the New Briar Canal from its turnout structure at Drop 5 to the Boundary Bridge—a distance of 2.6 miles.

In addition the section maintains 36.6 miles of open drain channels and 9.3 miles of tile drains appurtenant to the All-American Canal.

The section is divided into two divisions. The River Division operates and maintains the headworks, desilting basins, the All-American Canal and appurtenant drains to and including Pilot Knob Check. Western Division operates and maintains the remainder of the All-American, Coachella Branch of the All-American, and the New Briar Canals.

With a capacity of 15,155 cubic feet per second, a maximum diversion of 11,700 second-feet was made at All-American Canal Station 60 on March 30. The minimum diversion for the year was made on December 25.

The District's order to the U.S. Bureau of Reclamation at Station 60 was the sum of irrigation water orders below Pilot Knob Check plus 8,000 second-feet for Pilot Knob Hydro Plant diversion back to the river, up to the All-American Canal Contract 13,000 second-foot limit.

Total water available for diversion through Pilot Knob Hydro-Electric Plant was 782,237 acre-feet during 1960.

A total of 153,722 tons of sediment was returned to the Colorado River during the year resulting from desilting operations. July was the peak month with 43,005 tons of sediment returned. Sediment load varied with the flow of the river, February was the low month with 1,062 tons.

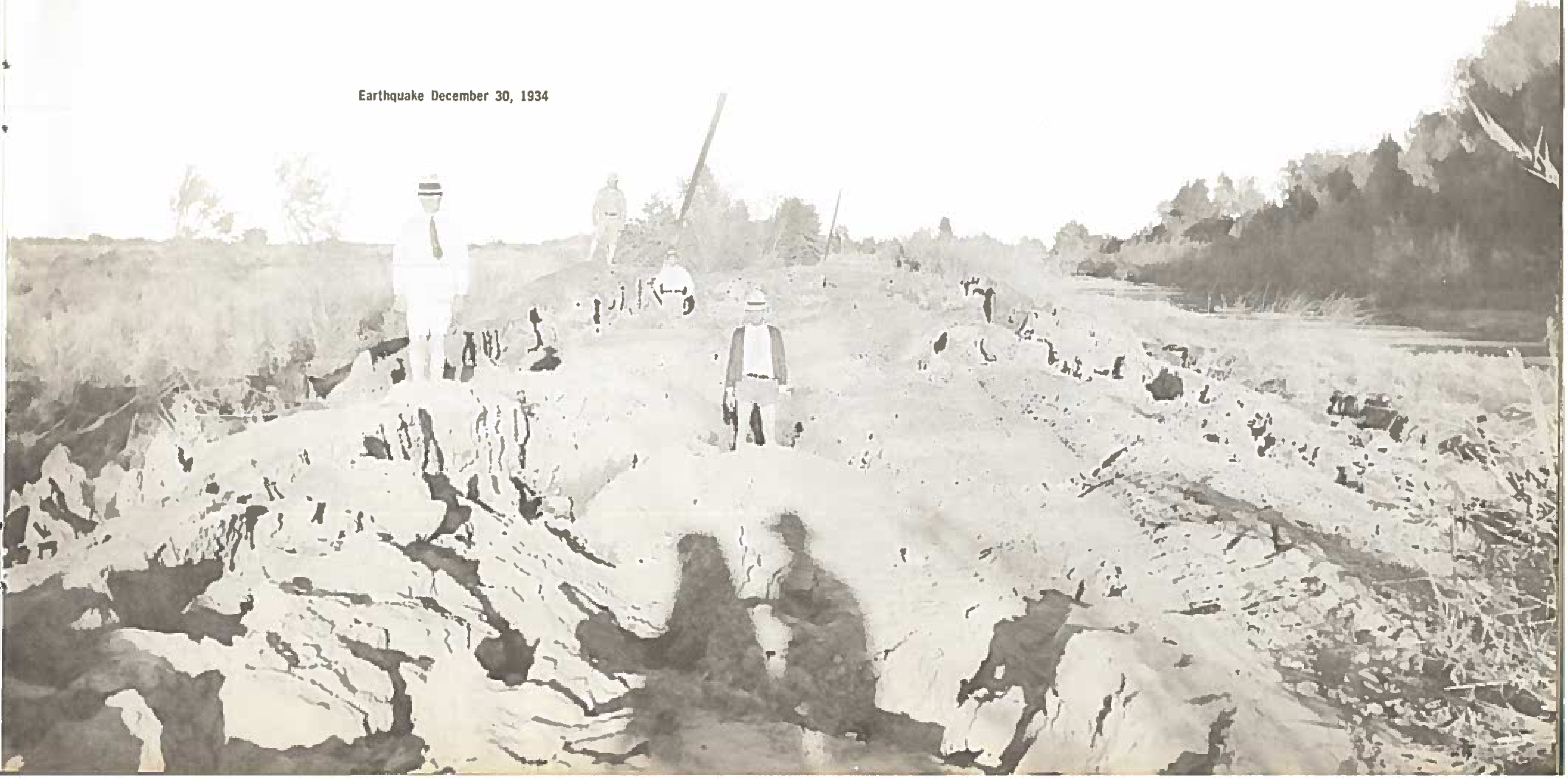
Demand for water during the year was slightly greater than in 1959. The average daily departure of the estimated discharge at Pilot Knob Check was +3.27 per cent.

Maintenance operations included mechanical upkeep of structural equipment, electrical maintenance, sandblasting and painting radial gates, cathodic protection, structural repairs. Other maintenance operations along the canals were road repairs, weed, brush, sandhill and erosion control.

Mechanical maintenance required a total of 23,550 man-hours; canal, drain, and other maintenance required 11,498 man-hours.

A total of eight radial gates for major structures were sandblasted and painted during the year. Three penstock gates for Drop 3 and four penstock gates for Drop 5 were manufactured during the year for installation in 1961. The new gates will replace original timber stop logs.

Earthquake December 30, 1934



Chemical weed control along drain bank

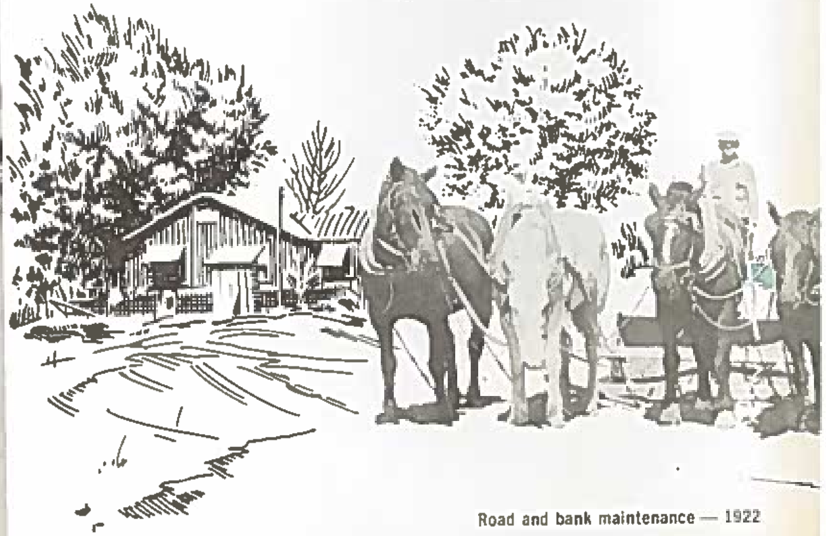
Road maintenance along main canal bank using water pumped from canal for tamping and grading operation

Levee inspection — 1922

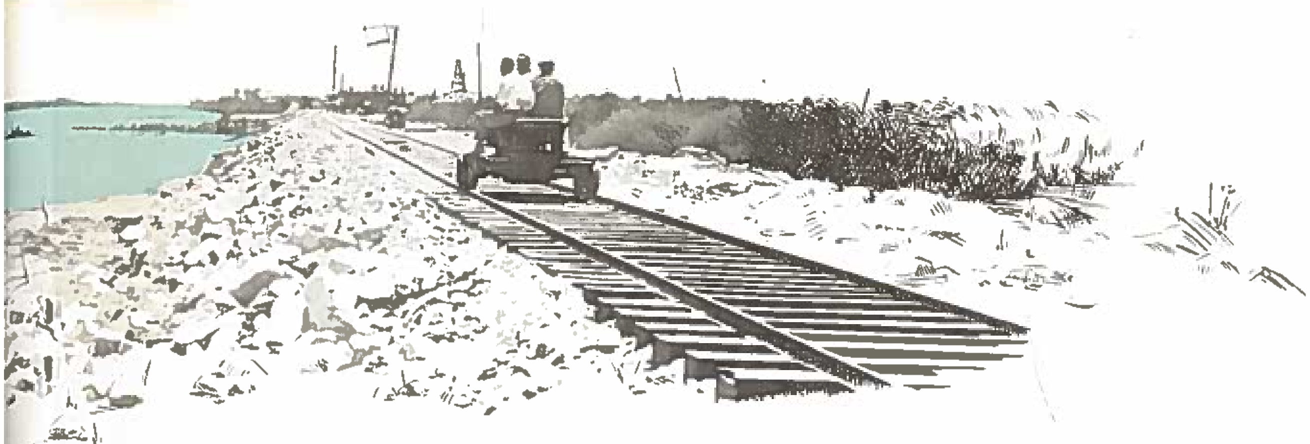
BANK AND CHANNEL MAINTENANCE

Statistical Summary

Bank Reinforcement	11,210 cubic yards of dirt fill material
Bank Protection	1,320 cubic yards of riprap
Road Surfacing:	
Clay	1,288 cubic yards
Gravel	2,770 cubic yards
Routine Bank and Channel Maintenance using Draglines, Motor Graders, Bulldozers	3,588 hours
Equipment Operation:	
Draglines (Cleaning and sloping 11 miles of berm, cleaning drains, loading trucks, and placing riprap)	659 hours
Bulldozers (Grading along canal banks and drains, moving sand drifts, quarry development)	872 hours
Motor Graders (Maintaining canal and drain roads)	1,365 hours
Water truck (Maintenance of roads along canals and drains)	371 miles
Miscellaneous Equipment (Compressors, pumps, mixers, and generators used in general maintenance, canals and drains)	692 hours



Road and bank maintenance — 1922



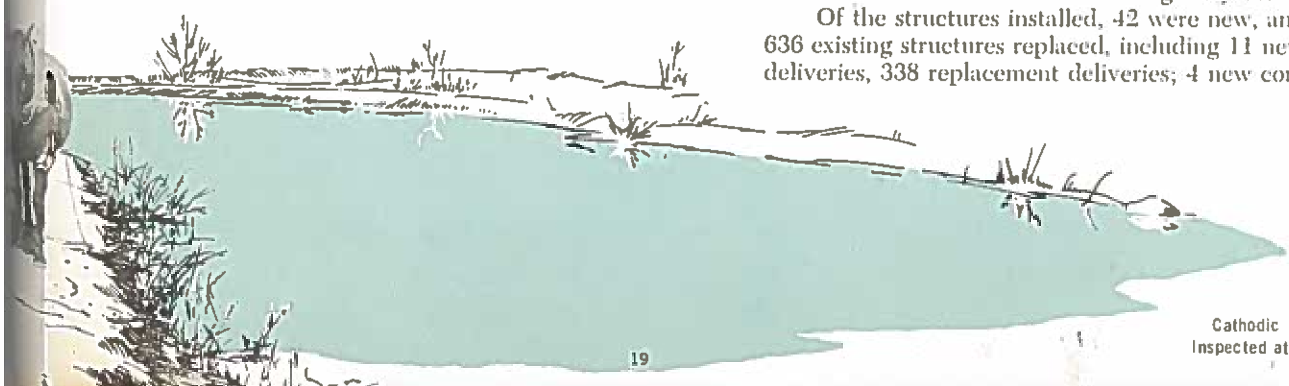
1960 Statistics — Irrigation System

MAIN CANALS

Total miles		153
Total Number of Canals in Distribution System (Bria, Rositas, Central Main, West Side Main, and Vail)		6
Total Number of Operational Structures		551
Maintenance Operations		
Dragline Cleaning		6 miles
Grading Canal Banks and Operational Roads		146 miles
Weed and Brush Control		1,688 miles
Rodent Control Patrol		5,691 miles

LATERAL CANALS

Total Miles		1,510
Total Number of Operational Structures		10,464
Concrete	8,492	
Rubble	764	
Wood	1,195	
Combination Materials	13	
General Maintenance		
Total Miles Cleaned		368
Hand Labor	66 miles	
Draglines	138 miles	
Bucket-line Dredges	164 miles	
Banks and Operational Road Maintenance		2,261 miles
Weed and Brush Control		7,503 acre-miles
Moss Control — Total Miles		1,781
Chemical Treatment	763 miles	
Mechanical Equipment	1,018 miles	



Irrigation Construction

MAIN CANALS

With the exception of the major construction work mentioned elsewhere in connection with the installation of the new Double Weir combination Check Hydro-Electric Plant, construction work was confined to replacement of existing points of control throughout the system.

This work consisted of:

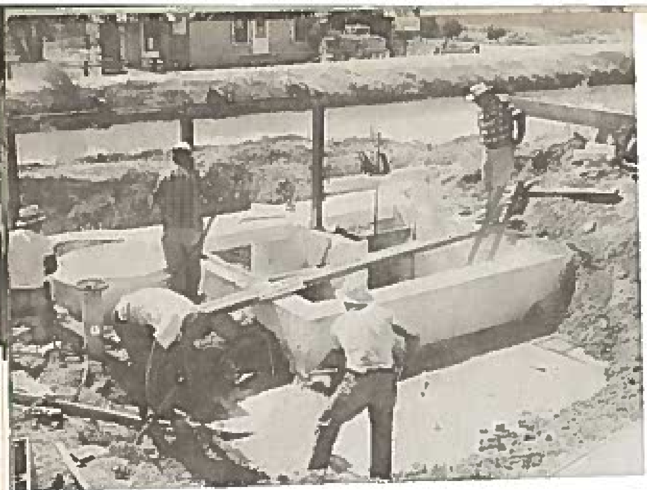
Rositas Canal	Construction of automatic spillway to Central Main Drain.
East Highline Canal	Replacement of "E" and Occident Headings and a control structure below Pomelo Heading.
Central Main Canal	Installation of two recorder well platforms and remote control facilities at Dahlia Check. Replacement of old wood structure at Drop 1 with concrete.
West Side Main Canal	Reinforced Spruce Heading and replaced six deliveries.
Vail Canal	Replaced Lateral No. 1 and No. 7 Headings, and completed construction of Spillway into New River.

LATERAL CANALS

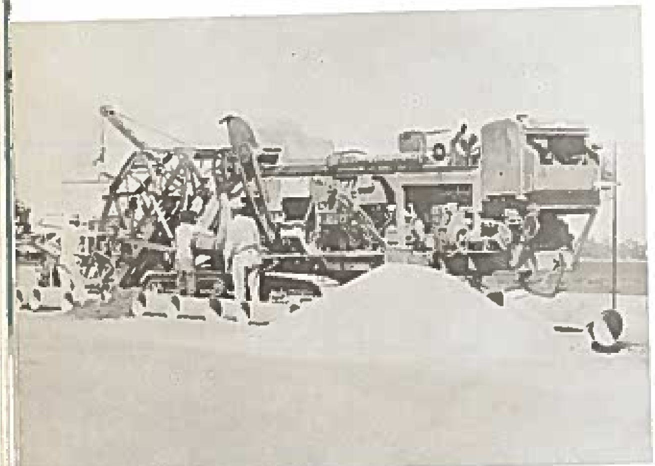
The program of replacing existing wooden checks and deliveries in the lateral canal system as they became inoperative was continued with a total of 678 structures installed during the year.

Of the structures installed, 42 were new, and 636 existing structures replaced, including 11 new deliveries, 338 replacement deliveries; 4 new con-

Cathodic Protection System Inspected at New River Siphon

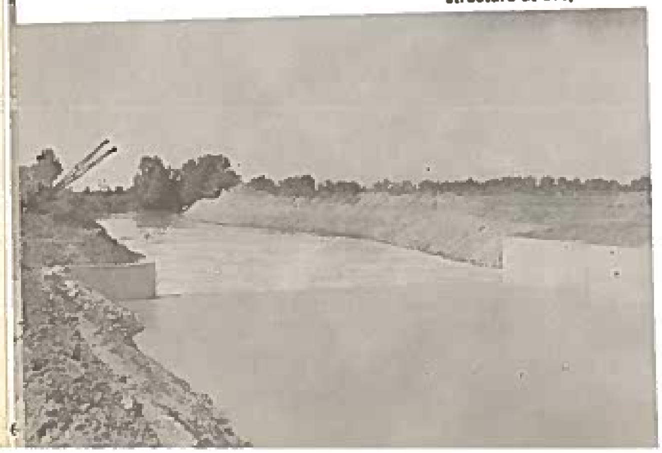


Construction of Automatic Gate at Rositas Spillway



Machine invented and owned by private contractor for installation of field drainage tile

Alamo River Erosion Control structure at Drop No. 3



crete checks, 256 checks and headings replaced; 25 new concrete control structures, 28 control structures replaced; 2 siphons installed, and 14 replaced.

Plans for the relocation of State Highway XI-Imp-201-C from Calipatria to Standard Canal included replacement of "C" Canal crossing and one delivery. This work was completed at the expense of the State Division of Highways.

During the year, 8.29 miles of irrigation lateral temini were concrete lined with the District sharing 50 per cent of the cost with adjacent land owners. As a result of our participation in this program, there was a decrease of 3.17 miles of lateral canals to be operated by the District.

Rules and Regulations Governing the Distribution and Use of Water, Regulation 34, provides for the rearrangement or exclusion of irrigation lateral termini to reduce or eliminate maintenance costs where there is a mutual betterment of both District and Landowners' facilities.

The District furnished engineering required prior to installation by private contractors of privately owned concrete lined ditches.

	1960	1959	1958
Private Concrete-head Ditches Installed	122.1* MILES	126.9 MILES	105.4 MILES
Field Investigations	294	269	259

*Bringing to date a total of 889.6 MILES installed

Under the continuing program of County road crossing replacements, 97 crossings were replaced during the year, making a three year total of 302 crossing replacements.

Slaughter Dredge on Lateral Canal — 1919

DRAINAGE SYSTEM

The District's drainage system development program, about 95 per cent complete, contemplates the operation and maintenance of a drainage outlet serving each Governmental Subdivision, approximately 160 acres.

The 1960 rate of expansion of this system was somewhat less than in previous years because a large percentage of the land is presently served. The drainage design unit received 84 requests for tile drainage investigations and recommendations, completing a total of 99 requests for this and prior years.

The Drainage Construction and Maintenance Unit is responsible for the operation and maintenance of the Main Drainage system, the seven operating divisions have the same responsibility for the lateral drainage system.

1960 Maintenance Statistics

MAIN DRAINS

Total Miles (exclusive of New and Alamo Rivers)			556
Total Number of Structures			1,601
Concrete		1,459	
Wood		142	
General Maintenance			
Total Miles Cleaned			208
Hand Labor		26	
Draglines		182	
Banks and Operational Road Maintenance			
Total Miles Cleaned			322
Motor Graders and Bulldozers			
Weed and Brush Control — Acre-miles Cleaned			1,251
Moss Control — Total Mileage			445
Total Man-hours		3,058	
Method of Control			
Chemical	2,655 man-hours	360 miles	
Hand Labor	48 man-hours		
Mechanical Equipment	355 man-hours	85 miles	

LATERAL DRAINS

Total Miles		819
Total Number of Structures		638
Concrete	423	
Rubble	54	
Wood	103	
Combination Wood-Other Materials	58	
General Maintenance		
Total Miles Cleaned		331
Hand Labor	19	
Draglines	281	
Bucket-line dredges	31	
Banks and Operational Road Maintenance		
Total Miles Cleaned		259
Motor Graders and Bulldozers		
Weed and Brush Control — Acre-Miles Cleaned		2,394
Moss Control — Total Mileage		402
Method of Control by miles		
Chemical	80	
Mechanical Equipment	322	

Drainage Construction

During the year to provide a more efficient drainage system, an additional 2.95 miles of lateral drains and .62 miles of main drains were built. In addition, 2.66 miles of laterals and .04 miles of main drains were reconstructed, and 11.33 miles of lateral and 3.27 miles of main drains were deepened.

The erosion control program on the drainage system was vigorously prosecuted with the construction of Alamo River Drops No. 3 and No. 5 both approved by the Board of Directors under Major Work Authorizations.

ALAMO RIVER DROP NO. 3

Location: East of existing Alamo River channel, near northwest corner Section 29,12-14

Type Structure: Reinforced concrete, overpour weir-type

Weir Width: 70 feet   Weir Height: 9.50 feet   Length: 43 feet

Capacity: 3,150 cubic-feet per second

Purpose: Erosion control, Alamo River and protect North End Dam

ALAMO RIVER DROP NO. 5

Location: Immediately west of existing Alamo River Channel near northwest corner Tract 180,13-14

Type Structure: Reinforced Concrete, overpour weir-type

Weir Width: 70 feet   Weir Height: 12 feet   Length: 43 feet

Capacity: 3,150 cubic-feet per second

Purpose: Erosion control, Alamo River

Continuing the program of erosion control on the Holtville Main Drain, two additional pipe siphons were installed, replacing flume crossings at the Occident and Orient Canals.

Erosion control on the balance of the drainage system required 18 minor control structures, and 7 old metal flume crossings were replaced with concrete pipe and fill.

Major levee reinforcements and channel work were necessary at the New River outlet due to heavy silt deposits forming a delta. Last major work on this outlet was in 1955.

A State Highway crossing was replaced at All-American Drain No. 8-A and State Highway 98.

In instances where it was impractical to provide gravity outlets for farm-tile drains, the District installed tile effluent sump pump outlets. The total in operation as of December 31 was 127, of which 27 were installed during the year. None were installed under Salton Sea Classification, thus the total tile drain sumps under this class remained at 22.

A significant increase in installation of farm tile for landowners by private contractors was recorded during the year. The year's total was 793.90 miles, as compared to 531.11 in 1959, and 490.16 miles in 1958. To date a total of 8,155.84 miles of farm tile drains have been installed. On these installations the District and Soil Conservation Service interchange information.

Remote control operation of canal gates has proved highly successful

Dredge Alpha — 1918

DISPOSITION OF WATER DURING 1960

	Acre-Feet	Acre-Feet
DIVERTED AT IMPERIAL DAM AND TRANSPORTED THROUGH ALL-AMERICAN CANAL		
DIVERTED AT IMPERIAL DAM, METERED AT STATION 60		5 644 980
*DIVERSIONS AT YUMA PROJECTS	1 195 156	
DIVERTED TO RIVER AT PILOT KNOB CHECK	782 265	
LOSS FROM IMPERIAL DAM TO PILOT KNOB CHECK	101 978	2 079 399
ALL-AMERICAN CANAL BELOW PILOT KNOB CHECK		3 565 581
DIVERSIONS TO COACHELLA BRANCH AT DROP NO. 1	493 252	
LOSS FROM PILOT KNOB TO DROP NO. 1	88 469	581 721
ALL-AMERICAN CANAL BELOW DROP NO. 1		2 983 860
DIVERSIONS FROM ALL-AMERICAN CANAL FROM DROP NO. 1 TO AND INCLUDING EAST HIGHLINE CANAL	1 277 709	
LOSS FROM DROP NO. 1 TO EAST HIGHLINE CANAL	51 443	1 329 152
ALL-AMERICAN CANAL BELOW EAST HIGHLINE CANAL		1 654 708
DIVERSIONS FROM ALL-AMERICAN CANAL FROM EAST HIGHLINE CANAL TO AND INCLUDING CENTRAL MAIN CANAL	923 998	
LOSS FROM EAST HIGHLINE CANAL TO CENTRAL MAIN CANAL	17 395	941 393
ALL-AMERICAN CANAL BELOW CENTRAL MAIN CANAL		713 315
DIVERSIONS FROM CENTRAL MAIN CANAL TO AND INCLUDING WEST SIDE MAIN CANAL	707 808	
LOSS FROM CENTRAL MAIN CANAL TO AND INCLUDING WEST SIDE MAIN CANAL	5 507	713 315
DIVERTED FROM ALL-AMERICAN CANAL TO OTHER MAIN CANALS		
WATER BELOW DROP NO. 1		2 983 860
LOSS IN ALL-AMERICAN CANAL AND OTHER MAIN CANALS BEFORE BEING DIVERTED TO LATERAL CANAL SYSTEM	306 381	
OPERATIONAL LOSS FROM ALL-AMERICAN CANAL AND OTHER MAIN CANALS	28 396	334 777
DELIVERED TO LATERAL CANAL SYSTEM		2 649 083
†LOSS IN LATERAL CANAL SYSTEM BEFORE DELIVERY TO USERS	412 990	
OPERATIONAL LOSS FROM LATERAL CANALS	57 980	470 970
DELIVERIES TO USERS		2 178 113

* 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 through the upper section of the All-American Canal the Yuma Projects water, in accordance with terms of the All-American Canal Contract dated December 1, 1932, and the contract amendatory of and supplemental to the All-American Canal Contract of December 1, 1932, dated March 4, 1952.

† Deliveries to users are based on gate measurements. Gate measurements are approximately 10 per cent low, resulting in the delivery of 10 per cent more water than is charged for. This difference and some 1,500 service pipes supplying farmsteads, outside subdivisions, etc., is included in the total shown as loss and unaccounted for in lateral canal system before delivery to users.

ANNUAL INVENTORY OF AREAS RECEIVING WATER SERVICE DURING 1960

GARDEN CROPS	ACRES BEING SERVED Gross	Duplicate	Net
BEANS	75		75
BROCCOLI	118		118
CABBAGE	2 186	959	1 227
CANTALOUPES	7 125		7 125
CARROTS	3 459	1 219	2 240
CAULIFLOWER	6	6	
CAULIFLOWER (SEED)	6		6
CELERY	10	5	5
CELERY (SEED)	4		4
ENDIVE	95	42	53
GARLIC	1 087		1 087
LETTUCE	40 448	30 191	10 257
LETTUCE (SEED)	138		138
MELONS (MIXED)	91		91
MUSTARD	78	18	60
OKRA	70	13	57
ONIONS	2 082	1 477	605
ONIONS (SEED)	91		91
POTATOES	6		6
RADISHES	3		3
RADISHES (SEED)	3		3
ROMAINE	40	12	28
SQUASH	1 383	443	940
TABLE BEETS (SEED)	5		5
TOMATOES	2 104	602	1 502
TURNIPS	5		5
VEGETABLES (MIXED)	173	83	90
WATERMELONS	4 325		4 325
TOTAL	65 216	35 070*	30 146

FIELD CROPS	ACRES BEING SERVED Gross	Duplicate	Net
ALFALFA	214 324	48 729	165 595
ALFALFA (SEED)	6 033	5 948	85
BARLEY	81 752	1	81 751
BERMUDA	2 128	346	1 782
CANE	15		15
CASTOR BEANS	10		10
CLOVER	1 763		1 763
COTTON	58 133	2 996	55 137
FLAX	16 514	117	16 397
GRASS	90	90	
HEAD CORN	25 896	10 487	15 409
MILLET	1 010	30	980
OATS	2 841		2 841
RYE	90		90
SESBANIA	4 251	1 502	2 749
SILAGE	169	169	
SOY BEANS	4		4
SUDAN	5 383	3 950	1 433
SUGAR BEETS	48 303	158	48 145
WHEAT	899		899
TOTAL	469 608	74 523*	395 085

PERMANENT CROPS	ACRES BEING SERVED Gross	Duplicate	Net
ASPARAGUS	1 675	10	1 665
CITRUS (MIXED)	159		159
DATES	106		106
GRAPEFRUIT	923	84	839
GRAPES	60		60
LEMONS	124		124
NURSERY	100	40	60
ORANGES	377		377
PALMS (DECORATIVE)	4		4
PASTURE (PERMANENT)	1 249	253	996
PECANS	93		93
TANGERINES	316	10	306
TOTAL	5 186	397	4 789
GRAND TOTAL	540 010	109 990*	430 020

AVERAGE NO. OF FARM UNITS	6 129
AVERAGE NO. OF OWNER-OPERATED (53%)	3 250
AVERAGE NO. OF TENANT-OPERATED (47%)	2 879
AVERAGE AREA-ACRES	60.08

SUMMARY OF AREA SERVED

CROPS	GROSS	DUPLICATE	NET
FIELD CROPS	469 608	74 523	395 085
GARDEN CROPS	65 216	35 070	30 146
PERMANENT CROPS	5 186	397	4 789
Totals	540 010	109 990*	430 020
AREA BEING RECLAIMED (LEACHING)			4 359
NET AREA IRRIGATED			434 379
AREA FARMABLE BUT NOT FARMED DURING 1960 (FALLOW LAND)			33 864
TOTAL AREA FARMABLE			468 243
AREA OF FARMS IN HOMES, FEED LOTS, CORRALS, ETC.			12 839
AREA IN CITIES, TOWNS, AND AIRPORTS			10 797
TOTAL AREA RECEIVING WATER			491 879
AREA IN DRAINS, CANALS, RIVERS, AND RAILROADS			70 433
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			303 883
TOTAL			908 195

** Duplicate acreage on this report is due to Imperial Valley's 12 month growing season. Many fields are double cropped, thus net acreage figures represent actual area cultivated.*

J. FRED HESSE
Department Manager

POWER DEPARTMENT

The District's power service area covers approximately 6,600 square miles, including most of Imperial County and Coachella Valley in Riverside County. Approximately 80 per cent of the service area is unpopulated wasteland, with facilities confined to populated areas. Approximately 99 per cent of our potential customers are receiving electric service.

The District electrical system extends about 150 miles from the Arizona state boundary to the extreme northern portions of Coachella Valley.

District owned and operated generating units with a total capacity of 173,400 kilowatts include Pilot Knob Hydro-Electric Plant, hydro plants at Drops 2, 3 and 4 on the All-American Canal, El Centro Steam Plant, and the Brawley Diesel Plant.

Other power sources include purchases from the U. S. Bureau of Reclamation at Davis Dam, and joint participation under a three party agreement with California Electric Power Company and Arizona Public Service Company for power produced at the Axis Steam Station near Yuma, Arizona.

During 1960 District owned and operated hydro plants supplied 36 per cent of the system's power requirements as compared to 38 per cent in 1959. El Centro Steam Plant and the Brawley Diesel Plant provided 21 per cent, an increase of 1 per cent over 1959.

Purchases from Davis Dam supplied 19 per cent of the power system needs, as compared to 22 per cent in 1959. A substantial increase in power received from the Axis plant found this source supplying 24 per cent of the District's power needs during the year as compared to 17 per cent in 1959.

OPERATION AND MAINTENANCE

Total costs of operation and maintenance of the system during 1960 were $4,721,756. More than two-thirds of the $396,360 increase over 1959 resulted from greater production costs because of a substantial increase in kilowatt-hour sales.

The 1960 costs for distribution, transmission, accounting and collecting, and administrative and general expenses were somewhat higher than 1959. Sales promotion costs decreased.

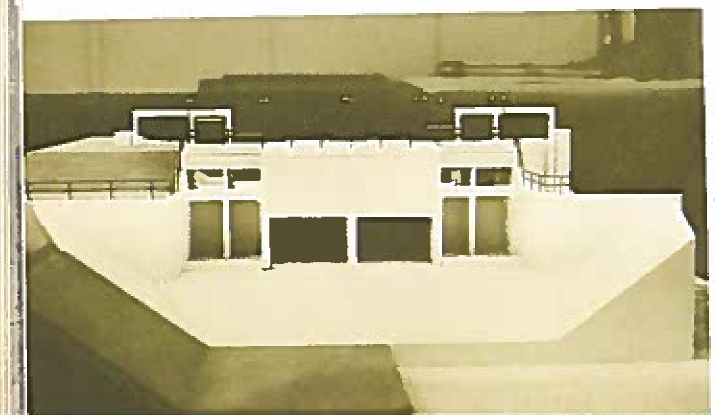
During the year there were a total of 16,529 distribution transformers in service for a total of 269,222 kva. The transformer shop painted and reconditioned 906 transformers and rewound 16 during the year. The meter shop tested a total of 6,872 meters, of which 461 were tested in the field.

CONSTRUCTION

During the year work was started on the combination check hydro-electric plant at the Double Weir structure on the Central Main Canal, being installed to replace a water control structure built in 1918. The new Double Weir plant is not only the first to be engineered and constructed entirely by District personnel but, in addition, is the first hydro plant installed in the main canal system.

This plant will be fully automatic, feeding directly into the distribution system. With a rated capacity of 600 kilowatts, the new Double Weir hydro plant is expected to produce 3,800,000 kilowatt-hours a year. The original cost estimate is $356,000. The plant is scheduled for completion in 1961.

During 1960 a total of $1,181,978 was spent on current additions and improvements to the system, a decrease of $588,434 over the previous year.



Double Weir Hydro-Electric Plant
The first Hydro Plant located on a District

COSTS OF OPERATION AND MAINTENANCE

	1960	1959	Increase + Decrease —
Steam Generation			
El Centro Steam Plant	$1,198,726	$1,052,591	$ 146,135+
Axis Plant Participation	636,757	369,667	267,090+
Hydro-Electric Plants	128,113	120,659	7,454+
Brawley Diesel Plant	47,288	42,429	4,850+
Purchased Power and Other Expense	897,222	1,052,010	154,788—
Transmission System	199,064	164,875	34,189+
Distribution System	611,387	567,305	44,082+
Customer Accounting and Collecting	296,384	268,300	28,084+
Sales Promotion	103,263	104,805	1,542—
Administrative and General	603,552	582,755	20,797+
Total	$4,721,756	$4,325,396	$ 396,360+

Gantry Crane — Pilot Knob Hydro Plant

The major portion of these funds was spent on the distribution and transmission plants.

Expenditures were distributed as follows: distribution plant, $748,171; transmission plant, $342,886; engineering and supervision, $63,888; general plant, $24,690; and production plant, $2,343.

Of the distribution plant expenditures, $231,174 was spent for poles and fixtures; $171,530 for conductors and devices; $159,603 for transformers, $76,162 for services, and $54,550 for meters.

Construction of 5 substations during the year provided the system with 71 substations with 188 transformers installed for a capacity of 708,835 kva.

MILES OF POWER LINES IN SERVICE DECEMBER 31, 1960

	Number of Miles	Miles Added in 1960
Transmission	465.6	14.0
Sub-transmission	349.2	2.5
Primary Distribution	2,332.0	52.0

SALES AND SERVICE

Revenue from the sale of electrical energy set a new record in 1960 of $9,228,204, an increase of $562,596 over 1959. Revenue from sales to ultimate customers was even more impressive with a $721,334 increase.

From the standpoint of both kilowatt-hour sales and revenue, 1960 was an excellent year. The total sales of 585,529,375 kilowatt-hours represented an increase of 15,644,621 kilowatt-hours over 1959. Sales to ultimate customers — the real yardstick for measurement of system growth — showed an 8.4 per cent increase over 1959 with 429,653,437 kilowatt-hours.

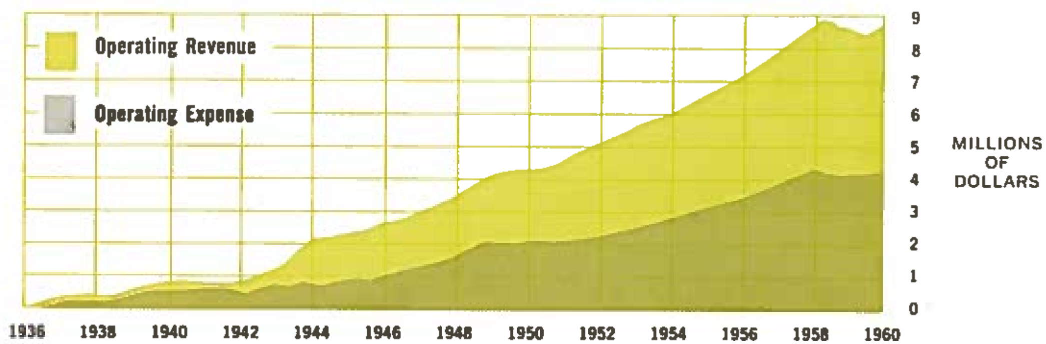
The 1960 system load peak of 156,600 kilowatts was a substantial increase over the 1959 mark of 143,600. At the end of the year there were 31,569 active meters in service.

Revised power rates, the first major revision since the District entered the power business in 1936, became effective on January 1. The new rate structure was designed to more realistically meet present day load patterns and to distribute costs between various classes of consumers more evenly.

Major changes included the cancellation of the flat rate water heating schedule, incorporation of promotional features to stimulate use of electric

Line crews extend service to new tract in Brawley

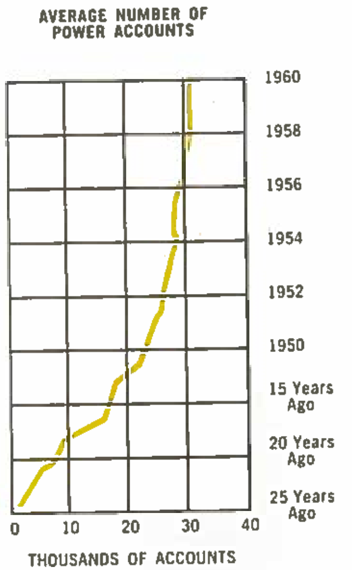
POWER OPERATING REVENUE AND EXPENSE

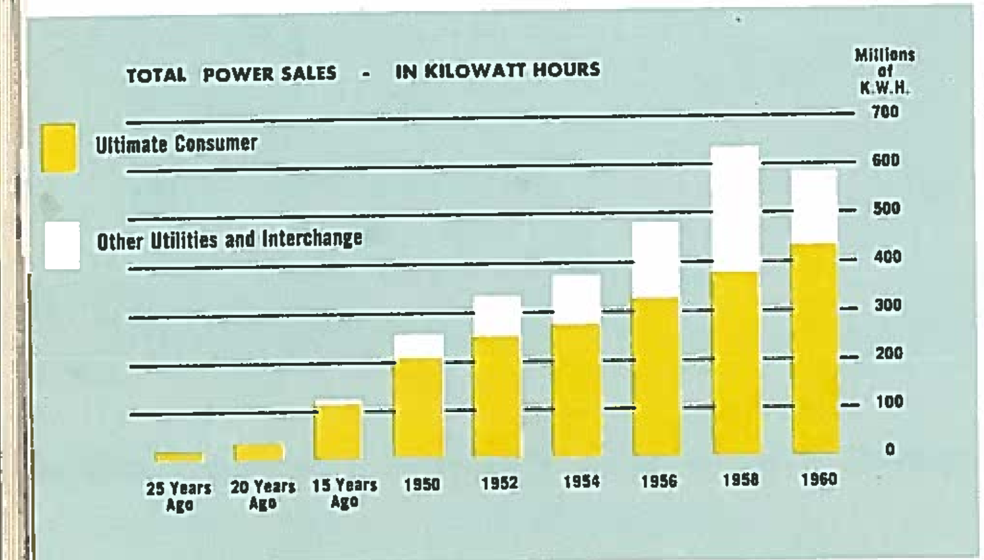


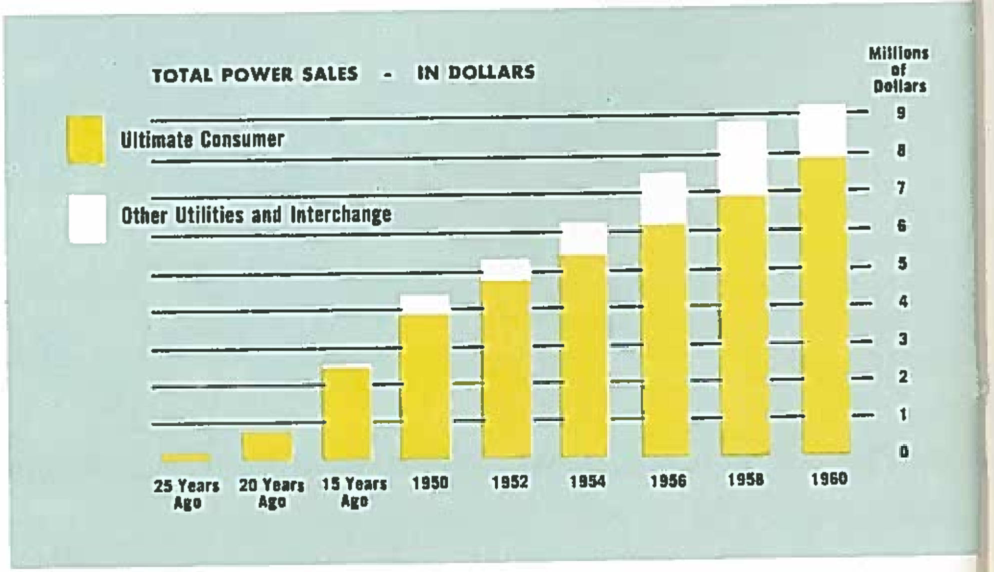
Pilot Knob Hydro-Electric Plant

POWER SALES 1960-59

ULTIMATE CONSUMERS	1960 Dollars	1960 Per Cent	1959 Dollars	1959 Per Cent
DOMESTIC	$3,487,275	37.8	$3,171,888	36.6
COMMERCIAL	2,537,347	27.5	2,096,404	24.2
INDUSTRIAL	1,078,183	11.7	1,179,097	13.6
AGRICULTURAL	623,530	6.7	575,175	6.7
STREET LIGHTING, PUBLIC AUTHORITY AND INTERDEPARTMENTAL	255,792	2.8	238,229	2.7
TOTAL Ultimate Consumers	$7,982,127	86.5	$7,260,793	83.8
OTHER UTILITIES	$1,246,077	13.5	$1,404,814	16.2
TOTAL SALES	$9,228,204	100.0	$8,665,607	100.0







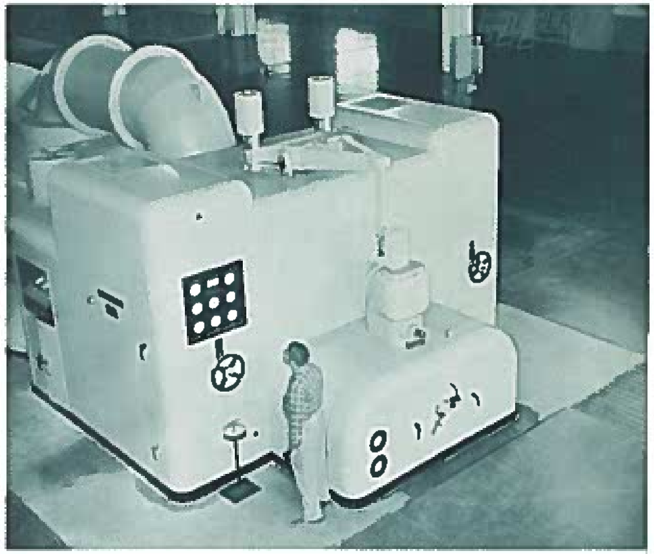
water heating and the heat pump by domestic customers, thus stimulating more fall, winter, and spring usage, cancellation of the general lighting, sign lighting, and combination commercial schedules, and cancellation of the cash refund to large customers. In addition, certain other revisions were made and new schedules added.

In cooperation with the Public Information Office, an aggressive sales promotion program planned to increase the residential domestic load was continued. Promotional efforts were designed to stimulate dealer sales of the electric range, water heater, dryer, and heat pump. Excellent results were attained particularly on sales of water heaters and heat pumps.

Sales efforts by division superintendents and commercial representatives were augmented by use of all media — newspapers, radio, television, outdoor posters, direct mail, and displays. All dealers were encouraged to tie-in with our advertising and promotion program.

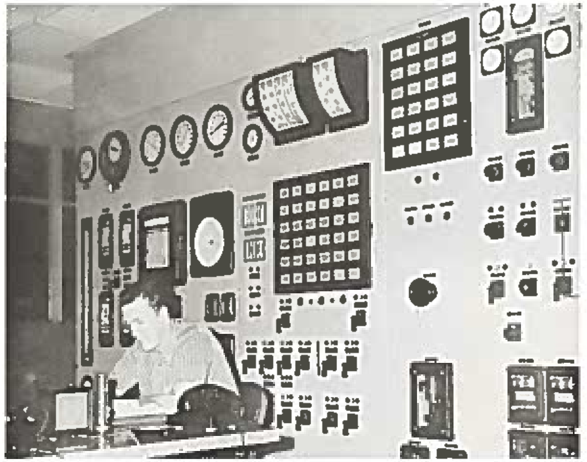
The Home Service section provided an important assistance to appliance dealers by making after-the-sale home demonstrations on major appliances. In addition programs were presented at the Demonstration Kitchen, and at classroom demonstrations for various high school home economics classes.

The Home Service section prepared weekly homemaking columns for daily and weekly newspapers in the service area. The section also served as a clearinghouse for a large number of mail and phone requests for recipes and similar information.

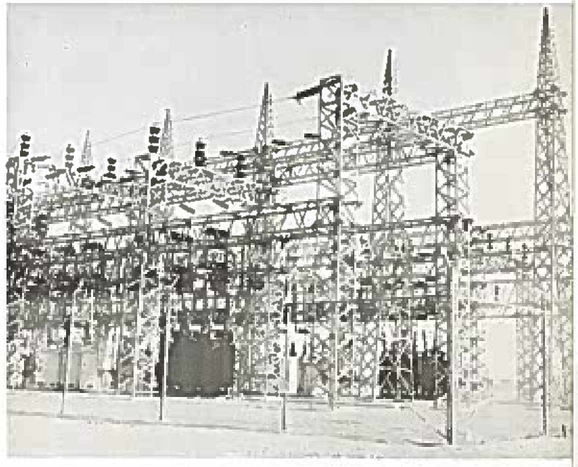


**Number 3 Turbo-Generator Unit
El Centro Steam Generating Plant**

**Armature repair in Meter Shop
at Operating Headquarters**



**Number 3 Unit Control Room
El Centro Steam Generating Plant**



El Centro Switching Station

JACK B. BROCKETT
Controller

FINANCE and ACCOUNTING

CONSOLIDATED STATEMENT OF ASSETS AND LIABILITIES AND NET WORTH

INTERDEPARTMENTAL ACCOUNT ELIMINATED

December 31, 1960

ASSETS

FUNDS FOR:	
Operation and Maintenance	$ 5 754 392
Payment of Bond Principal and Interest	3 935 683
New Construction	2 542 942
Reserve Funds for Replacements and Emergencies	2 371 847
Other Special Funds	216 187
Total Funds, Including $1 737 800 Invested in U.S. Bonds and Treasury Certificates	$ 14 821 051
Accounts Receivable and Current Assessments	1 750 066
Materials and Supplies	940 207
Delinquent Assessments on Tax Deed Land	70 712
Prepayments on All-American Canal Contract	3 167 656
Deferred Charges and Prepaid Expense	738 237
Properties (Water and Power Systems)	102 831 617
Total Assets	$ 124 319 546

LIABILITIES

Current Liabilities	$ 1 514 278	
Outstanding Bonds	36 113 000	
Deferred Contract Installments	23 268 600	
Reserves	31 734	
Deferred Credits	1 843 974	$ 62 771 586
	$ 55 336 556	
NET WORTH— From Operations Contributed	6 211 404	61 547 960
Total Liabilities and Net Worth		$ 124 319 546

THE NET WORTH IS 49.5% OF TOTAL ASSETS

COMPARATIVE INCOME AND EXPENSE STATEMENT AND BALANCE SHEET

WATER DEPARTMENT*

	1960	Over 1959	Under 1959
Operating Revenue	$ 6 117 236	$ 258 777	
Operating Deductions	3 502 269	12 793	
Operating Income	2 614 967	245 984	
Other Income	137 003	43 058	
Gross Income	2 751 970	289 042	
Income Deductions	260 056		$ 20 726
Net Income, or Current Earned Surplus	2 491 914	309 768	
Balance Sheet			
Current Assets	4 410 387	264 333	
Investment and Fund Accounts	2 635 337	557 368	
Fixed Assets	54 767 793	1 281 430	
Other Assets and Deferred Charges	3 686 006		36 042
Investment in Subsidiary Mexican Co.	7 945 399		
Total Assets	73 444 922	2 067 089	
Current Liabilities	688 391	9 248	
Long-Term Liabilities	29 315 779		1 050 200
Deferred Credits and Reserves	1 681 851	20 991	
Surplus	41 758 901	3 087 050	
Total Liabilities and Surplus	$ 73 444 922	2 067 089	

* Does not include Accounts of Subsidiary Company in Mexico.

POWER DEPARTMENT

	1960	Over 1959	Under 1959
Operating Revenue	$ 9 318 815	$ 591 017	
Operating Deductions	6 474 766	439 882	
Operating Income	2 844 049	151 135	
Other Income	218 310	30 207	
Gross Income	3 062 359	181 342	
Income Deductions	912 647		$42 001
Net Income, or Current Earned Surplus	2 149 712	223 343	
Balance Sheet			
Current Assets	6 037 440	324 968	
Investments and Fund Accounts	5 391 639	1 197 548	
Fixed Assets—Electric Plant	46 558 832		575 178
Other Assets and Deferred Charges	9 963		344 660
Total Assets	57 997 874	602 678	
Current Liabilities	818 911	19 588	
Long-Term Liabilities	30 422 821		962 201
Deferred Credits and Reserves	193 857		88 467
Surplus	26 562 285	1 633 758	
Total Liabilities and Surplus	$ 57 997 874	602 678	

	DECEMBER 31 1960	DECEMBER 31 1959	INCREASE OR DECREASE*
WATER OPERATING FUNDS			
Assessments Collected for Following Year	$ 382 257	$ 377 767	$ 4 490
Other Cash Balances	1 844 077	1 656 253	187 824
Total Cash Balances	$ 2 226 334	$ 2 034 020	$ 192 314
COMPAÑIA OPERATING FUNDS (1)			
Compañia General Fund — Cash Balance	$ 8 077	$ 20 097	($ 12 020)*
WATER BOND AND WARRANT FUNDS			
Assessments Collected for Following Year	$ 515 437	$ 530 813	($ 15 376)*
Other Cash Balances	320 033	345 416	(25 383)*
Total Cash Balances	$ 835 470	$ 876 229	($ 40 759)*
Less Unpaid Matured Principal and Interest	(44 564)	(48 408)	(3 844)*
Less Interest Maturing Next January 1	(123 660)	(133 509)	(9 849)*
Less Bonds Called for Redemption Next January 1	(145 000)	(155 000)	(10 000)*
Total Fund Balances	$ 522 246	$ 539 312	(17 066)*
WATER CONSTRUCTION FUNDS			
Assessments Collected for Following Year	$ 118 947	$ 122 725	($ 3 778)*
Other Cash Balances	1 048 022	626 833	421 189
Total Cash Balances	$ 1 166 969	$ 749 558	$ 417 411
MISCELLANEOUS WATER FUNDS			
Total Cash Balances	$ 1 123 015	$ 973 704	$ 149 311
Total Water Department Fund Balances	$ 5 046 641	$ 4 316 691	$ 729 950

	DECEMBER 31 1960	DECEMBER 31 1959	INCREASE OR DECREASE*
POWER OPERATING REVENUE FUNDS			
Cash Balances	$ 3 876 980	$ 3 702 657	$ 174 323
POWER BOND FUND			
Cash Balances	$ 3 103 364	$ 2 798 700	$ 304 664
Less Unpaid Matured Principal and Interest	(25 254)	(25 942)	688*
Less Interest Maturing Next January 1	(441 273)	(455 860)	14 587*
Less Bonds Maturing Next January 1	(475 000)	(435 000)	(40 000)
Total Fund Balances	$ 2 161 837	$ 1 881 898	$ 279 939
POWER CONSTRUCTION FUNDS			
Cash Balances	$ 1 375 973	$ 569 622	$ 806 351
MISCELLANEOUS POWER RESERVE FUNDS			
Cash Balances	$ 1 461 868	$ 1 387 687	$ 74 181
Total Power Department Fund Balances	$ 8 876 658	$ 7 541 864	$1 334 794
ALL FUNDS			
Assessments Collected for Following Year	$ 1 016 641	$ 1 031 305	($ 14 664)
Other Cash Funds	14 161 409	12 080 969	2 080 440
Total Cash Balances	$15 178 050	$13 112 274	$2 065 776
Less Bond Principal and Interest Matured or Due January 1	(1 254 751)	(1 253 719)	(1 032)
TOTAL FUND BALANCES	$13 923 299	$11 858 555	$2 064 744

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

Note: Cash and Fund Balances includes securities held.

CONSOLIDATED REVENUE AND EXPENSE STATEMENT

IMPERIAL IRRIGATION DISTRICT

AND

COMPAÑIA DE TERRENOS Y AGUAS DE LA BAJA CALIFORNIA, S.A.

January 1, 1960 to December 31, 1960

	CONSOLIDATED	Imperial Irrigation District POWER DEPT.	Imperial Irrigation District WATER DEPT.	Compañia WATER
OPERATING REVENUES				
Realized Revenues from:				
Current Year Assessments	$ 1 455 473		$1 455 473	
Penalties and Costs on Assessments	3 285		3 285	
Redemption of Delinquent Assessments	42 781		42 781	
Interest Collected on Redemptions	5 540		5 540	
Total Collected by Assessor-Collector	$ 1 507 079		$1 507 079	
Sales of Land Held under Assessment Deeds	2 891		2 891	
Equivalent of Current Assessments on Tax Deed Land	570		570	
Rental of Land Held under Assessment Deeds	492		492	
Interest on Land Sales Contracts	1 138		1 138	
Total Revenues Derived from Assessments	$ 1 512 170		$1 512 170	
Water Sales	4 449 389		4 300 878	$148 511
Gate Service Charges	63 700		63 700	
Pipe Service Charges	38 253		38 253	
Rental of Buildings	127 202	$ 78 211	48 991	
Rental and Sales of Operative Land	9 506		9 506	
Rental of Equipment	21 180		21 180	
Contributions for Operation and Maintenance of All-American Canal	103 237		103 237	
Sales of Rock	326		326	
POWER SALES				
Residential or Domestic Sales	$ 3 487 275	$3 487 275		
Rural Sales — Agricultural Power	623 530	623 530		
Commercial Sales	2 537 347	2 537 347		
Industrial Sales	1 078 183	1 078 183		
Public Street and Highway Lighting	85 821	85 821		
Other Sales to Public Authorities	90 514	90 514		
Interdepartmental Sales	79 457	79 457		
Sales to Other Electric Utilities	1 246 077	1 246 077		
Total Power Sales	$ 9 228 204	$9 228 204		
Miscellaneous Revenue	31 472	12 400	18 995	77
TOTAL OPERATING REVENUES	$15 584 639	$9 318 815	$6 117 236	$148 588

OPERATING REVENUE DEDUCTIONS	CONSOLIDATED	Imperial Irrigation District POWER DEPT.	Imperial Irrigation District WATER DEPT.	Compañia WATER
Total Operating Revenue — Brought Forward	$15 584 639	$9 318 815	$6 117 236	$148 588
OPERATING EXPENSES				
Operation and Maintenance of Irrigation System	$ 2 725 592		$2 562 776	$162 816
Operation and Maintenance of All-American Canal	670 904		670 904	
Operation and Maintenance of Imperial and Laguna Dams	48 487		48 487	
Operation and Maintenance of Power System:				
Production Expenses	2 011 158	$2 011 158		
Power Purchased	896 948	896 948		
Transmission Expenses	199 064	199 064		
Ditsribution Expenses	611 387	611 387		
Accounting and Collecting Expense	296 384	296 384		
Sales Promotion Expenses	103 263	103 263		
Administrative and General Expense	603 552	603 552		
Total Power Operation and Maintenance	$ 4 721 756	$4 721 756		
Miscellaneous Expenses	5 517		5 517	
Total Operating Expenses	$ 8 172 256	$4 721 756	$3 287 684	$162 816
DEPRECIATION AND AMORTIZATION				
Depreciation of Equipment and Facilities	$ 54 076		$ 53 665	$ 411
Depreciation of Buildings	36 793		36 793	
Depreciation of Power System	1 700 881	$1 700 881		
Amortization of Canal System and Defense Works, Mexico	97 038			97 038
Amortization of Plant Acquisition Adjustment	35 966	35 966		
Losses on Sales and Retirements of Assets	121 470		121 470	
Taxes	19 751	16 163	2 657	931
Total Operating Revenue Deductions	$10 238 231	$6 474 766	$3 502 269	$261 196
Net Operating Revenue	$ 5 346 408	$2 844 049	$2 614 967	$112 608*
OTHER INCOME				
Interest on United States Securities	$ 42 382	$ 39 892	$ 2 490	
Interest on Bank Deposits	263 411	165 477	97 934	
Miscellaneous Interest	49 520	12 941	36 579	
Total Other Income	$ 355 313	$ 218 310	$ 137 003	
GROSS INCOME	$ 5 701 721	$3 062 359	$2 751 970	$112 608*
INCOME DEDUCTIONS				
Interest on District Bonds	$ 1 142 978	$ 889 970	$ 253 008	
Amortization of Debt Discount	7 048		7 048	
Lease of Power Rights	22 677	22 677		
Total Income Deductions	$ 1 172 703	$ 912 647	$ 260 056	
INCOME RETAINED FOR USE IN THE BUSINESS, END OF YEAR	$ 4 529 018	$2 149 712	$2 491 914	$112 608*

*Deficit

ROBERT D. REYNOLDS
Department Manager

OPERATIONS SERVICES DEPARTMENT

The Operations Services Department supplies the operating departments with specialized services essential to their basic function. The department includes the Right-of-Way Section, Building and Grounds Section, Mechanical Section, and Purchasing and Stores Section.

During the year the Right-of-Way Section participated in the leasing of several thousand acres of District-owned land on the southern end of Salton Sea for geothermal exploration and development by a private firm. The section also processed numerous requests to lease District-owned land in the Salton Sea area for recreational purposes.

In addition the Right-of-Way Section negotiated a number of right-of-way agreements, encroachment permits, and other agreements essential to operations.

The Building and Grounds Section built a Heavy Equipment and a Transportation Office building in Headquarters Yard, started remodeling the Brawley Division office, and expanded the maintenance and modernization program in other division offices.

The Mechanical Section continued the program of automotive fleet rotation to achieve maximum use in keeping with vehicle depreciation. The 384 unit District fleet of automobiles and trucks traveled over 4,200,000 miles during the year. The heavy equipment fleet including bulldozers, draglines, and graders operated over 54,000 hours.

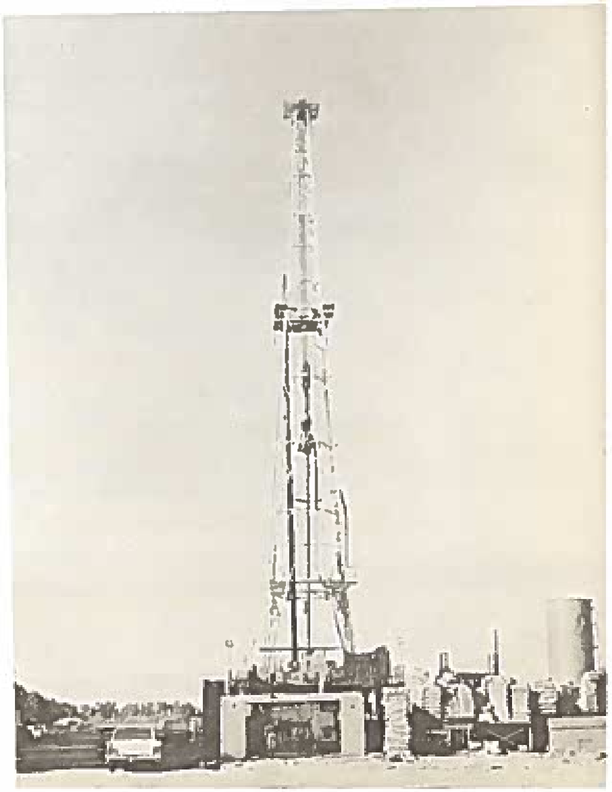
The planned combination of the Purchasing Section and the Stores Section was accomplished during the year to provide greater efficiency in inventory and stock control. The policy of standard pricing, instituted in 1959, was continued.

Purchases in the amount of $1,500,000 for materials and services necessary for the operation of the District were made from suppliers within the service area in accordance with a policy established by the Board of Directors.

With the combined planning of the Water Department, Power Department, and Controller, the Division stores in Brawley, Calexico, Calipatria, Holtville and Westmorland were discontinued except for the handling of gasoline, oil and cement.

Operation and maintenance of Division stores and yards were placed under the supervision of the Water Department, permitting greater efficiency of man-power utilization.

Carpenter shop of Building and Grounds Section



Drilling rig at site of Geothermal exploration near Salton Sea

C. JAMES LLOYD
Department Manager

PERSONNEL DEPARTMENT

During 1960 certain changes were made within the personnel department to better accomplish the objective of assisting management in the recruitment, selection, development, utilization, and compensation of District employees.

In addition to maintaining routine operations, existing personnel practices were reappraised, and a long range plan developed designed to improve departmental effectiveness.

The payroll unit, formerly a part of the Finance and Accounting Department, was transferred to the Personnel Department to provide greater control over personnel transactions such as internal transfers and status changes. The change also eliminated duplicate filing systems.

A new group insurance plan for employees and their dependents was selected as a result of a comprehensive study over a period of several months. The new plan will be installed in January 1961.

Indirect employee compensation, such as sick leave, retirement, and group insurance, was separated from direct compensation such as wages and salaries.

A separate function within the Personnel Department was established to identify the general structure of the District work force, to organize job relationships and responsibilities, and to ascertain particular organizational strengths and deficiencies in terms of specific objectives.

Provision was made for the integration of all existing Board policies and operating procedures as a reference for uniform action throughout the District.

As a relatively new department, it is our feeling that changes implemented during 1960 will provide an excellent foundation for new programs, many of which are programmed for next year.

New procedures and programs planned for 1961 include use of psychological tests and improved methods of selecting new personnel; an orientation program for new employees; an employee manual for new employees; an intensive on-the-job safety program; and the inauguration of an annual evaluation of employee benefits, wages, and salaries.

Senior employee's wife
adjusts 39 year service pin

Departmental Distribution of Employees	DECEMBER 31, 1960			DEC. 31, 1959
	FULL TIME	TEMPORARY & PART TIME	TOTAL	TOTAL
EXECUTIVE	29	3	32	29
GENERAL MANAGER	7	0	7	6
WATER	444	5	449	443
POWER	298	1	299	288
OPERATIONS SERVICES	114	4	118	126
FINANCE AND ACCOUNTING	70	9	79	96
PERSONNEL	7	0	7	3
TOTALS	969	22	991	991

Hydraulic Auger used by SCS and District personnel in Soil Survey work

SOIL CONSERVATION

1960 marks the completion of 20 years of joint cooperation between Imperial Irrigation District and the U.S. Department of Agriculture, Soil Conservation Service in soil and water conservation practices.

In the early 1940s the District requested Soil Conservation Service to provide engineers and soil scientists to make research studies of Imperial Valley drainage and salt control problems. As a result of these studies various action programs were initiated jointly.

A unique partnership was created when Imperial Irrigation District also became the Soil Conservation District for Imperial Valley as a result of a Memorandum of Understanding between USDA - SCS and the District. The District Board of Directors sets policy for soil conservation engineers, both organizations assist local farmers in soil surveys and drainage tile designs, and correlate information on all surveys and designs.

Through these joint efforts tools, methods, procedures and facts become available which could be used to answer questions such as which lands were feasible and economical to drain, the size and location of tile lines so as to provide maximum drainage, optimum depth and spacing of tile lines, leaching required to maintain salt balance in the soil, cropping system and other agronomic practices required for reclamation.

During 1960 a total of seventy-four Farm and Ranch Plans were prepared covering 10,707 acres. To date, there are approximately 800 completed plans involving 123,165 acres in use in Imperial Valley.

Soil Surveys were completed by SCS and the District on a total of 26,000 acres during the year. Surveys have now been completed on approximately 376,000 acres in Imperial Valley.

Studies were started during the year to find a practical method of eliminating bacterial deposits in drainage tile. In addition studies are in process to determine the practicability of eight foot sections of perforated pipe using fibreglass filters. These studies will continue.

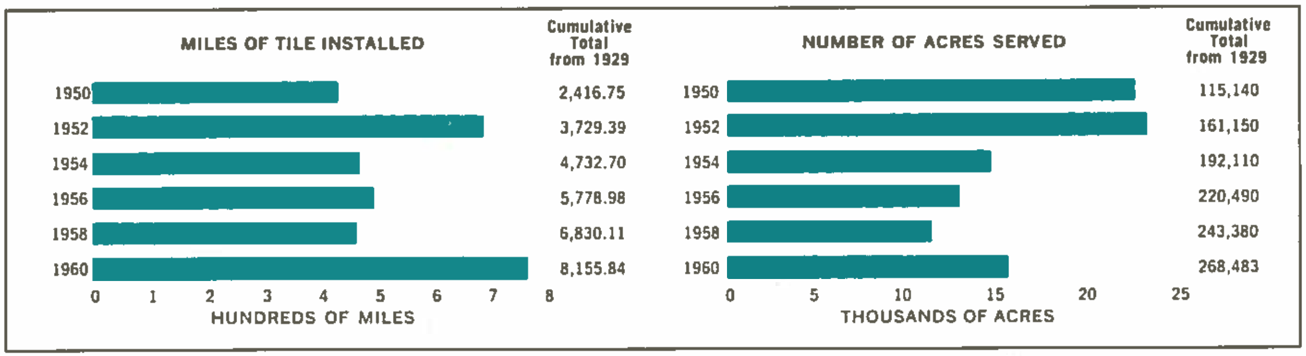
A coordinated information program was instituted about two years ago with the opening of the District Public Information Office. This program includes not only releases for general distribution, but also a training curricula for foreign agricultural specialists.

Technical assistance made available to the Imperial Irrigation District through an agreement with the Soil Conservation Service includes a work unit conservationist, one civil engineer, one agricultural engineer, two soil scientists, and three conservation aids.

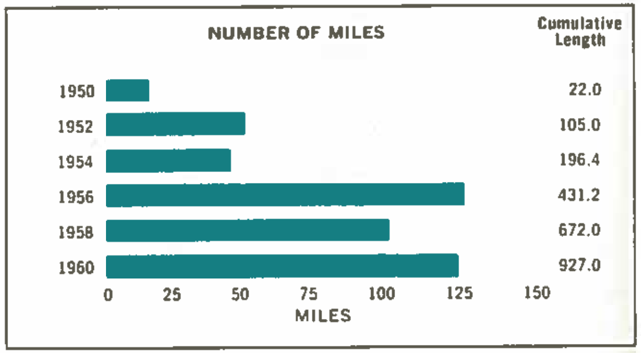
SUMMARY OF ACCOMPLISHMENTS

CONSERVATION CROP ROTATIONS	16,020 acres
CROP RESIDUE UTILIZATION	7,923 acres
SUBSOILING	10,160 acres
TOXIC SALT REDUCTION	7,951 acres
DROP SPILLWAYS	15 structures
TILE DRAINAGE	2,221,387 lineal feet
TILE DRAINAGE	12,907 acres
CANAL LINING	456,637 lineal feet
LAND LEVELING	9,589 acres
IMPROVED WATER APPLICATION	4,537 acres

TILE INSTALLATION BY IMPERIAL VALLEY FARMERS 1950-1960



CONCRETE LINING INSTALLATION 1950-1960



Figures include private ditches and District laterals.

PILOT KNOB HYDRO-ELECTRIC PLANT

DESIGNED AND ILLUSTRATED BY THOMAS E. GREGORY • SAN DIEGO