

AUDIT REPORT OF TENNESSEE VALLEY
AUTHORITY FOR THE FISCAL YEAR
ENDED JUNE 30, 1951

LETTER

FROM THE

COMPTROLLER GENERAL OF THE UNITED STATES

TRANSMITTING

AUDIT REPORT OF TENNESSEE VALLEY AUTHORITY
FOR THE FISCAL YEAR ENDED JUNE 30, 1951,
PURSUANT TO THE GOVERNMENT CORPORATION
CONTROL ACT (31 U. S. C. 841), PURSUANT TO
HOUSE RESOLUTION 480, EIGHTY-
SECOND CONGRESS



DECEMBER 17, 1951.—Referred to the Committee on Expenditures
in the Executive Departments and ordered to be printed

UNITED STATES

GOVERNMENT PRINTING OFFICE

WASHINGTON : 1952

LETTER OF TRANSMITTAL

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington 25, December 12, 1951.

The honorable the SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEAR MR. SPEAKER: There is presented herein report on the audit of Tennessee Valley Authority for the fiscal year ended June 30, 1951. This audit was made by the Corporation Audits Division of the General Accounting Office, pursuant to and in accordance with the requirements of the Government Corporation Control Act (31 U. S. C. 841).

Respectfully submitted.

LINDSAY C. WARREN,
Comptroller General of the United States.

LETTER OF TRANSMITTAL

The following report of the results of the investigation conducted by the Department of the Interior, Bureau of Land Management, in the State of California, is hereby transmitted to the Senate and the House of Representatives of the United States of America.

Very respectfully,
[Signature]

CONTENTS

		Page
GENERAL COMMENTS.....		1
Statement of sources and application of funds.....		2
Investment of United States Government.....		2
Fixed assets and accumulated depreciation.....		4
Multiple-use common facilities and operations.....		6
Power operations.....		7
Navigation operations.....		11
Flood control operations.....		11
Chemical operations.....		12
Development activities.....		14
Administrative and general expenses.....		15
Cash in United States Treasury.....		15
Current and accrued liabilities.....		15
Contributions in aid of construction.....		15
RECOMMENDATIONS TO THE CONGRESS.....		15
RECOMMENDATIONS TO THE AUTHORITY.....		17
RETIREMENT SYSTEM OF THE TENNESSEE VALLEY AUTHORITY.....		17
SCOPE OF AUDIT.....		17
OPINION.....		18
FINANCIAL STATEMENTS.....		
Balance sheets, June 30, 1951 and 1950.....	Exhibit 1	21
Notes to financial statements at June 30, 1951.....		23
Statement of power, navigation, and flood control operations, for the years ended June 30, 1951 and 1950.....	2	25
Statement of chemical plant operations and fertilizer and munitions research and development, for the years ended June 30, 1951 and 1950.....	3	27
Statement of development activities, for the years ended June 30, 1951 and 1950.....	4	29
Summary of fixed assets and related depreciation, June 30, 1951.....	Schedule 1	30
Power, navigation, and flood control plant, and related depreciation, June 30, 1951.....	2	32
Chemical plant and accumulated depreciation and depletion, June 30, 1951.....	3	33
General plant and accumulated depreciation, June 30, 1951.....	4	34
Construction in progress and investigations for future projects, June 30, 1951.....	5	35
Summary of changes in fixed assets, for the year ended June 30, 1951.....	6	36
Summary of changes in accumulated depreciation, for the year ended June 30, 1951.....	7	38
Summary of power operating expense, for the year ended June 30, 1951.....	8	39
Summary of power generation expense, for the year ended June 30, 1951.....	9	40
Power production and expense, by plants, for the year ended June 30, 1951.....	10	41
Transmission, administrative and general, and other power expenses, for the year ended June 30, 1951.....	11	43
Operation of multiple-use facilities common to power, naviga- tion, and flood control, for the year ended June 30, 1951.....	12	45
Summary of development activities expense, for the year ended June 30, 1951.....	13	46
Administrative and general expenses, for the year ended June 30, 1951.....	14	51
APPENDIX.....		
Retirement System of Tennessee Valley Authority.....		55
Certificate of certified public accountants, June 30, 1951.....		56
Balance sheet, June 30, 1951.....		57
Statement of pension accumulation fund, for the year ended June 30, 1951.....		58

AUDIT REPORT OF TENNESSEE VALLEY AUTHORITY FOR THE FISCAL YEAR ENDED JUNE 30, 1951

GENERAL ACCOUNTING OFFICE,
CORPORATION AUDITS DIVISION,
Washington 25, D. C.

HON. LINDSAY C. WARREN,
Comptroller General of the United States.

DEAR MR. WARREN: We submit herewith our report on the audit of the accounts and financial statements of TENNESSEE VALLEY AUTHORITY for the fiscal year ended June 30, 1951. This audit was made pursuant to the requirements of the Government Corporation Control Act (31 U. S. C. 841).

The financial statements in this report are not presented in the same form as contained in the Authority's published financial statements, but are based upon the account balances which are the same in both cases. We have revised the form of presentation in certain instances and have also included additional statements in order to more clearly show (1) investment in fixed assets and related depreciation, (2) investment of United States Government, (3) operation of the power program, and (4) details of development activities expense.

GENERAL COMMENTS

Tennessee Valley Authority is a wholly owned Government corporation created by the Tennessee Valley Authority Act of 1933 (16 U. S. C. 831) for the general purposes of providing for the unified development of the Tennessee River system, including flood control in the Tennessee River and Mississippi River basins; navigation on the Tennessee River; generation of power consistent with flood control and navigation; reforestation and the proper use of marginal lands, and agricultural and industrial development of the Tennessee Valley; operation of Government power and chemical properties at and near Muscle Shoals, Alabama; and the economic and social well-being of the people living in the Tennessee drainage basin and adjoining territory. The act does not specify the life of the Authority nor otherwise place a time limit on its existence.

The powers conferred upon the Authority are exercised through a board of directors composed of three members appointed by the President of the United States, by and with the advice and consent of the Senate. The act defines certain qualifications of the members of the board and provides that any member of the board may be removed from office at any time by a concurrent resolution of the Senate and House of Representatives.

STATEMENT OF SOURCES AND APPLICATION OF FUNDS

A condensed statement of sources and application of funds for the fiscal year 1951 is given below.

Source of funds:		
Appropriations by the Congress	-----	\$194,714,000
Power operations (excluding depreciation and amortization, and liquidation of advance collection of rent)	-----	37,394,862
Chemical operations (excluding depreciation and retirements)	-----	2,290,285
Sale or use of property transferred from other Federal agencies	-----	79,646
Interest income from purchasers of village properties	-----	5,724
Total funds provided	-----	<u>234,484,517</u>
Application of funds:		
Additions to fixed assets	-----	126,945,823
Less:		
Net salvage from plant sold, re-used, or stored	-----	\$4,856,305
Depreciation charged to construction and other accounts, not identifiable in financial statements	-----	1,063,763
Contributions in aid of construction	-----	279,043
		<u>6,199,111</u>
		120,746,712
Repayment of investment of U. S. Government:		
Reduction of long term debt	-----	5,000,000
Payment into U. S. Treasury	-----	4,000,000
		<u>9,000,000</u>
Expenditures of non-income-producing programs, excluding depreciation	-----	7,583,048
Total funds applied	-----	<u>137,329,760</u>
Balance, representing increase in cash and other assets, less current and accrued liabilities	-----	<u>\$97,154,757</u>

The more important items stated above are commented on in the following sections of this report.

INVESTMENT OF UNITED STATES GOVERNMENT

The investment of the United States Government totaling \$1,116,693,583 at June 30, 1951, is segregated below between power and other, as determined by the Authority. The amount allocated to power excludes general assets not segregated by programs; it also excludes construction in progress relating to multiple-use facilities for which an allocation of costs to programs has not been made.

Balance, June 30, 1951

	<i>Power</i>	<i>Other</i>	<i>Combined (exhibit 1)</i>
Appropriations by the Congress	\$437,062,754	\$585,255,227	\$1,022,317,981
Transfers of property, net	19,276,643	25,459,062	44,735,705
	<u>456,339,397</u>	<u>610,714,289</u>	<u>1,067,053,686</u>
Less:			
Net expense of non-income-producing programs		134,265,532	134,265,532
Payments into the general fund of the U. S. Treasury	33,059,019	9,085,777	42,144,796
	<u>33,059,019</u>	<u>143,351,309</u>	<u>176,410,328</u>
	423,280,378	467,362,980	890,643,358
Net income from power operations	<u>182,050,225</u>	<u>182,050,225</u>	<u>182,050,225</u>
Long term debt:			
2¼-2½ percent serial bonds issued under section 15c of the TVA Act; sold to and held by U. S. Treasury; interest rate by temporary agreement 1⅞ percent at June 30, 1951	44,000,000		44,000,000
Total investment of U. S. Government	<u>\$649,330,603</u>	<u>\$467,362,980</u>	<u>\$1,116,693,583</u>

At June 30, 1951, the accumulated total of appropriations by the Congress, including an executive allotment under the Emergency Appropriation Act, Fiscal Year 1935, amounted to \$1,022,317,981. For the fiscal year 1951 the 81st Congress appropriated \$194,714,000 under the following acts: Independent Offices Appropriation Act, 1951, Public Law 759 (\$99,714,000); Supplemental Appropriation Act,

1951, Public Law 843 (\$28,500,000); and Second Supplemental Appropriation Act, 1951, Public Law 911 (\$66,500,000).

To June 30, 1951, the Authority had made the following payments into the general fund of the United States Treasury:

Excess proceeds as determined under section 26 of the TVA Act:		
Power (see below)-----	\$15, 059, 019	
Other-----	9, 085, 777	\$24, 144, 796
Under provisions of title II of The Government Corporations Appropriation Act, 1948, including \$2,963,675 payment of power proceeds determined under section 26 of the TVA Act subsequent to enactment of the 1948 appropriation act (excluding \$12,500,000 bonds retired)—power-----		18, 000, 000
Total-----		<u>\$42, 144, 796</u>

Under the provision of section 26 of the act, the excess proceeds from power sales and other sources for each fiscal year, as determined by the Authority, are required to be paid into the United States Treasury by the end of each calendar year.

Following is a summary, based on the Authority's computation, of the excess proceeds for the years ended June 30, 1951 and 1950, showing also the amounts withheld by resolution of the board of directors for the year 1950.

	<i>Year ended June 30</i>	
	<i>1951</i>	<i>1950</i>
Net income from operations, before depreciation and amortization:		
Power-----	\$37, 394, 862	\$36, 970, 569
Chemical-----	2, 290, 285	2, 155, 877
	<u>39, 685, 147</u>	<u>39, 126, 446</u>
Gross revenues from other operations:		
Navigation-----	41, 268	57, 394
Development activities-----	64, 178	52, 805
Interest income from sale of village properties-----	5, 724	18, 210
Chemical research and development-----	6, 268	
	<u>117, 438</u>	<u>128, 409</u>
Sale of property, including salvage realized for cash on retirements of fixed assets and income of \$18,000 from lease of nitrate plant No. 1-----	1, 727, 875	1, 702, 764
Collections of principal on long term receivables-----	147, 316	1, 179, 270
Advance collection of rent on partial capacity of Memphis steam plant purchased by the Authority on May 31, 1950-----		1, 133, 170
Net decrease (* increase) in inventories-----	446, 487*	924, 794
Carry-over of amount withheld in prior year-----	20, 272, 499	5, 924, 680
	<u>61, 503, 788</u>	<u>50, 119, 533</u>
Deduct:		
Portion of expenditures for operation and maintenance of multiple-use dams and reservoirs allocated to navigation and flood control programs:		
Navigation-----	1, 051, 469	1, 185, 005
Flood control-----	1, 056, 430	1, 186, 942
	<u>2, 107, 899</u>	<u>2, 371, 947</u>
Expenditures for additions to transmission lines under section 12 of TVA Act and for additions to other power division facilities-----	14, 257, 845	21, 975, 087
Retirement of long term debt in accordance with title II of The Government Corporations Appropriation Act, 1948-----	5, 000, 000	2, 500, 000
Additional payment into the United States Treasury pursuant to title II of The Government Corporations Appropriation Act, 1948-----	4, 000, 000	3, 000, 000
Expenditures for alteration or replacement of bridges under the provisions of Public Law 301, 77th Congress-----	274, 668	
	<u>25, 640, 412</u>	<u>29, 847, 034</u>
Net amount available for payment into the United States Treasury under section 26—balance at June 30, 1951, represents excess power proceeds of \$31,816,251 and \$4,047,125 arising from other sources-----	35, 863, 376	29, 272, 499
Less amount withheld per resolution of the board representing power proceeds of \$16,512,322 and \$3,760,177 arising from other sources-----	(*)	20, 272, 499
Balance-----	\$ (*)	\$-----

*Prior to the end of the calendar year 1951, as provided in section 26 of the TVA Act, TVA's board of directors is required to make a determination as to what portion of the \$35,863,376 is necessary for the purposes enumerated in that section, and any balance in excess of these requirements is to be paid into the United States Treasury by the end of the calendar year.

Under the provisions of title II of The Government Corporations Appropriation Act, 1948, beginning with the year ended June 30, 1948, the Authority must retire from net power proceeds for the preceding year not less than \$2,500,000 of its outstanding bonded indebtedness. In addition, the act requires payments from these proceeds into the United States Treasury in amounts sufficient when added to the payments made on bonded indebtedness to total not less than \$87,059,810 during the 10-year period ending June 30, 1958, and an equivalent amount during each succeeding 10-year period until an aggregate of \$348,239,240 has been paid. Since enactment of this legislation, the Authority has made payments totaling \$30,500,000 from net power proceeds, of which \$12,500,000 was applied as reduction of bonded indebtedness and the remaining \$18,000,000 paid into the general fund of the United States Treasury. Payments during 1951 totaled \$9,000,000, of which \$5,000,000 was applied to the reduction of the bonded indebtedness and \$4,000,000 paid into the general fund of the United States Treasury. In order to comply with the above provision, the Authority must pay amounts totaling \$56,559,810 by June 30, 1958.

The foregoing act also requires that new congressional appropriations for power facilities be repaid over a period not to exceed 40 years after the year in which the facilities go into operation; the additional amount payable under this provision was \$41,119,571 at June 30, 1951.

The 2¼-2½ percent serial bonds, dated August 15, 1939, were issued under section 15c of the TVA Act. They are fully and unconditionally guaranteed by the United States as to both principal and interest. By authority of a letter dated January 10, 1942, from the Secretary of the Treasury to Tennessee Valley Authority, the effective interest rate was made 1 percent until further notice. In a letter dated June 15, 1949, the United States Treasury advised the Authority that, effective August 16, 1949, the interest rate would be increased to the nearest multiple of ⅛ of 1 percent below the cost of funds to the Treasury. This basis resulted in an interest rate of 2 percent from August 16, 1949, through August 15, 1950. Effective August 16, 1950, the interest rate was reduced by the Treasury to 1½ percent.

Our recommendations to the Congress relate to the investment of the United States Government and therefore should be referred to in connection with this section.

FIXED ASSETS AND ACCUMULATED DEPRECIATION

The gross investment in fixed assets (\$1,100,305,882) and the related accumulated depreciation (\$139,808,295) at June 30, 1951, are presented in schedule 1. The gross investment is stated on the basis of cost, except for property acquired from the Department of the Army. Those properties transferred from the Department of the Army determined by TVA to contribute to its operations have been recorded at appraised values or reported cost (including accrued depreciation) as of the date of acquisition, while those determined by TVA to contribute no value to its operations have been recorded at nominal amounts. In the case of acquired electric properties, the classified property accounts are stated at original cost when first devoted to public service, in accordance with regulations of the Federal Power Commission.

The basis used by the Authority in allocating the cost of multiple-use facilities to power, navigation, and flood control activities is explained on page 6.

The changes in fixed assets for the year are summarized in schedule 6. The additions to plant of \$126,945,823 for the year consisted of:

Direct power:			
Steam plants under construction:			
Johnsonville.....	\$36,596,406		
Widows Creek.....	12,040,467		
Kingston.....	2,869,726		
Shawnee.....	9,199,232	\$60,705,831	
Fort Patrick Henry single-use dam.....		566,303	
Other power facilities:			
Additional generating units.....	11,746,072		
Other, principally transmission plant additions.....	35,167,305	46,913,377	
Total direct power.....		108,185,511	
Multiple-use facilities:			
Upper Holston projects.....	3,332,973		
Boone project.....	7,474,540		
Other multiple-use facilities.....	523,948	11,331,461	
Chemical plant.....		3,843,942	
General plant, principally transportation.....		3,065,658	
Navigation and sundry other facilities.....		519,251	
Total additions.....		\$126,945,823	

The cost to complete the major dam and power projects under construction or authorized for construction at June 30, 1951, is estimated to be \$564,000,000. The major portion of this estimate is for the construction of steam plants, which upon completion will increase the Authority's installed power capacity by 2,790,000 kw. The installed capacity of power plants owned by the Authority at June 30, 1951, was 2,664,550 kw. The following tabulation lists the steam plants under construction or authorized for construction at June 30, 1951.

<i>Steam plant</i>	<i>Authorized capacity (kilowatts)</i>	<i>Costs incurred to June 30, 1951</i>	<i>Total costs authorized by board</i>
Johnsonville.....	675,000	\$46,419,710	\$98,000,000
Widows Creek.....	675,000	13,479,534	103,000,000
Kingston.....	540,000	2,869,726	85,000,000
Shawnee.....	540,000	9,199,232	88,500,000
Colbert.....	360,000	87,011 ^a	59,000,000
Total.....	2,790,000	\$72,055,213	\$433,500,000

^a Costs included in investigations for future projects.

All the above steam plants have been approved by the Congress at June 30, 1951, except the Colbert plant, which was approved in the Independent Offices Appropriation Act, 1952.

Fixed assets are controlled by detailed unit records (about 70 percent of the total plant in service has thus far been so unitized). These records are used in providing information required in making retirements as well as in part for making periodic checks of the actual existence of certain classes of units of plant.

The total amount of the depreciation accumulated to June 30, 1951, was \$139,808,295 or approximately 18.3 percent of the gross investment at that date currently being depreciated. As shown in schedule 7, the net increase in the accumulation during the year amounted to \$13,115,930. Depreciation is computed, in general, on a straight-line basis by the use of group-composite rates based on engineers' estimates of the service lives of depreciable plant. These rates are reviewed periodically and adjusted, when necessary, over the estimated remain-

ing average service lives of the several classified groups of assets. Depreciation rates in use at June 30, 1951, generally were comparable with those at the end of the preceding year.

In accordance with the practice prescribed by the Federal Power Commission and followed by private utilities generally, no provision for depreciation of the costs of land rights, clearing of rights-of-way for transmission lines and reservoirs, and relocation and removals of former occupants has been made by the Authority.

Other than for the chemical plant, which represents a relatively small portion of the investment in fixed assets, the Authority charges retirements to accumulated depreciation at recorded cost less net salvage. This is in accordance with the practice approved by the Federal Power Commission; no profit or loss is computed except in the retirement of complete segments of plant.

MULTIPLE-USE COMMON FACILITIES AND OPERATIONS

The Authority has developed a system of dams and reservoirs which are used for power, navigation, and flood control. These three activities require certain similar plant facilities, and because of this common use the investment in and operation of dams, reservoirs, etc., jointly serving these activities is referred to as multiple-use. The multiple-use facilities fall into two classes: (1) facilities normally used for only a single purpose, or direct investment, and (2) facilities normally used for more than one purpose. The direct investment is charged entirely to the purpose served whereas the second or common investment is allocated among the three purposes served.

The allocation percentages of the common investment are based on the findings of the TVA board of directors and are final upon approval by the President of the United States. In February 1951 the South Holston Dam was added to the system, and as a result of this addition the board made a new finding revising the allocation percentages of the investment to 41.5 percent to power, 31 percent to flood control, and 27.5 percent to navigation. This report of the board's latest findings was dated November 19, 1951, and has been submitted for the approval of the President of the United States.

Schedule 2 contains a summary at June 30, 1951, of the investment in multiple-use facilities and related depreciation and the allocation thereof to power, navigation, and flood control.

In the operation of the multiple-use facilities, the expense of operations relating directly to a single purpose is charged to that purpose's operations. The remaining expense relating to more than one purpose is classified as multiple-use common expense and is allocated to power, navigation, and flood control on the basis of two sets of ratios. These expenses for the year 1951, as presented in schedule 12, are summarized:

	<i>Power</i>	<i>Navigation</i>	<i>Flood control</i>
Operation (exclusive of depreciation) distributed 40% to power, 30% to navigation, and 30% to flood control.	\$1,329,111	\$906,833	\$906,833
Multiple-use allocation ratios (40.5%, 29%, and 30.5% from July through January; and 41.5%, 27.5%, and 31% for the remainder of the year):			
Maintenance	79,482	54,636	59,597
Depreciation	1,079,647	747,890	810,190
Total multiple-use common operating expense as allocated	\$2,488,240	\$1,799,359	\$1,866,620

Prior to fiscal year 1951 the operating expenses, exclusive of maintenance and depreciation, were divided equally among the three programs. A study of the distribution of these expenses was completed by the Authority during fiscal year 1951, resulting in the adoption of a distribution of 40 percent to power, 30 percent to navigation, and 30 percent to flood control. Maintenance and depreciation are distributed on the basis of the percentages applied in the allocation of the common investment.

POWER OPERATIONS

The net income from power operations for the year ended June 30, 1951, amounted to \$25,853,112, a decrease of \$215,100 or .8 of 1 percent compared with the fiscal year 1950. Fiscal year 1950 net power income was the largest in the history of the Authority. The operating results for 1951, as shown in exhibit 2, are summarized and compared with the fiscal year 1950:

	Year ended June 30, 1951			
	Amount	Percent of total operating revenues	Increase (*decrease) from preceding year	
			Amount	Percent
Revenues:				
Sales of electric energy.....	\$69,826,533	99.3	\$12,567,194	22.0
Rents and other revenues.....	503,047	.7	23,725*	4.5*
Total operating revenues.....	70,329,580	100.0	12,543,469	21.7
Expense:				
Production.....	20,567,473	29.2	10,895,789	112.7
Transmission and distribution.....	5,049,456	7.2	592,179	13.3
Payments in lieu of taxes.....	2,444,796	3.5	25,896*	1.1*
Depreciation and amortization.....	11,684,888	16.6	782,531	7.2
Administrative and general expenses.....	3,407,003	4.8	585,947	20.8
Sales promotion.....	313,731	.5	14,969*	4.6*
All other.....	145,438	.2	17,047	13.3
Total operating expense.....	43,612,785	62.0	12,832,628	41.7
Net revenue from operations.....	26,716,795	38.0	289,159*	1.1*
Interest expense (net).....	863,683	1.2	74,059*	7.9*
Net power income.....	\$25,853,112	36.8	\$215,100*	.8*

As shown in exhibit 2, operating expense of \$43,612,785 consists of an allocation of multiple-use common expense of \$2,488,240 and direct expense of \$41,124,545. The TVA Act and other Federal laws do not provide for the Authority to pay certain costs incurred by other Federal agencies for the benefit of the Authority; consequently these costs are not included in the above statement. (See our recommendations to the Congress, p. 16.)

Sales of electric energy for the fiscal year 1951, expressed in both dollars and Mkw (thousands of kilowatt hours), were the largest in the history of the Authority. Kilowatt hour sales increased 2,356 million or 16.6 percent compared with the fiscal year 1950. The major portion of this increase arose from sales to municipalities and cooperatives. As shown above, revenues from sales of electric energy increased \$12,567,194 or 22 percent compared with the preceding year. The following comments relate to the sales of electric energy, as classified in exhibit 2.

The Authority was selling energy to 147 municipal and cooperative systems at June 30, 1951, an increase of two systems over June 30, 1950. Larger power requirements by the municipalities and cooperatives resulted in an increase in revenue of \$6,392,684 or 20.5 percent

and an increase in energy sales of 1,560,093 MkwH or 21.5 percent. The increased power requirements arose from a larger number of customers as well as greater average consumption per customer. Sales to the four metropolitan areas (Chattanooga, Memphis, Nashville, and Knoxville) accounted for \$2,813,196 or 44 percent of the increase in revenue and 728,337 MkwH or 46.7 percent of the increase in energy sales. The average rate per kwh was 4.26 mills, a decrease of .04 mills or about 1 percent compared with the preceding year. This decrease was the result of larger energy sales to other than the four metropolitan areas; these sales were not accompanied by a relative increase in demand charges.

Commercial and industrial revenue arose from sales to 22 customers in this classification, the major portion of the sales being to five aluminum or chemical companies. Revenue increased \$4,817,866 over the preceding year due to an increase in energy delivered of 764,551 MkwH (20.7 percent) and a higher average rate per kwh. This class of service is contracted for on a negotiated basis and involves different rates, classes, and sources of power. Because of these varying conditions many factors are reflected in the average rate per kwh, and to some extent the factors offset one another. However, the principal factor contributing to the increase of .53 mills (16.6 percent) in the average rate was the increase in delivery of special power. Rates for special power are substantially higher than rates for other classes, inasmuch as special power was generally considered to have been steam generated or acquired from outside sources.

Revenue from sales to Federal agencies (eight establishments) increased \$1,206,490 or 17.3 percent and the energy delivered increased 221,983 MkwH or 11.3 percent. The Atomic Energy Commission and the Redstone (Huntsville) Arsenal remained the principal customers and accounted for most of the increase in energy sales. The increase of .2 mills in the average rate per kwh during the current year resulted from larger deliveries of higher cost special power.

Sales to electric utilities for the year 1951 showed an increase in revenue of \$68,141 or 1.2 percent and a decrease in energy delivered of 215,639 MkwH or 33.2 percent. Although six utility systems were served, one system accounted for 79.5 percent of the revenue and 82.6 percent of the energy delivered in 1951. The average rate per kwh in 1951 was 12.91 mills, representing an increase of 4.39 mills or 51.5 percent. Relatively greater deliveries of higher-cost special power accounted for the higher average rate per kwh. Cancellation of contracts for primary energy with certain utilities accounted for the decrease in energy deliveries.

Total operating expense for the year 1951 increased \$12,832,628 or 41.7 percent. The most important contributing factors were (1) increased steam production and acquisitions of power from outside sources to meet the expanded requirements of customers, and (2) less favorable water conditions compared with the preceding year. Water conditions were about average during 1951 but considerably below the more favorable water supply during 1950. Pertinent comments on the various classifications of operating expense, as shown in exhibit 2 and supporting schedules, follow.

The Authority generated more electric energy during 1951 than any other year in its history. The sources of the system input expressed in MkwH and related information for the fiscal year 1951 are presented

in schedule 10 and are summarized in part below and compared with fiscal year 1950.

	Year ended June 30, 1951		Increase (*decrease) from preceding year	
	Mkwh	Percent of system input	Mkwh	Percent
Generation:				
Authority-owned plants.....	15,862,265	79.2	676,055	4.5
Corps of Engineers hydro plants.....	477,936	2.4	317,148	-----
Aluminum Company hydro plants under Fontana agreement.....	1,688,939	8.4	505,014*	23.0*
	18,029,140	90.0	488,189	2.8
Purchased power.....	724,576	3.6	628,963	-----
Interchange power received.....	1,281,468	6.4	492,508	62.4
Total system input.....	20,035,184	100.0	1,609,660	8.7
Less:				
Delivered under Fontana agreement....	1,868,851	9.3	322,014	20.8
Interchange power delivered.....	726,718	3.6	1,047,026*	59.0*
Transmission and transformation losses, etc.....	917,578	4.6	21,773*	2.3*
	3,513,147	17.5	746,785*	17.5*
Total sales of electric energy.....	16,522,037	82.5	2,356,445	16.6

Generation expense in 1951 was \$5,444,022 or 50.8 percent larger than in 1950, due mainly to the increase of \$3,920,395 in steam generation expense. Due to increased power requirements and less favorable water conditions in 1951, steam generation increased 1,441,890 Mkwh or 141.5 percent. The ratio of average gross generation to the installed capacity of the Authority-owned plants in 1951 was 70.7 percent for hydro and 66.3 percent for steam. The comparable ratios for 1950 were 79.1 percent and 27.9 percent, respectively. Hydro generation accounted for 84.5 percent of the net generation in Authority-owned plants during 1951 compared with 93.3 percent in 1950. During the year 1951 additions of 52,500 kw were made to the Authority-owned hydro plants. The reservoirs were filled to 82 percent of normal maximum storage capacity at the beginning of the year and 72 percent at June 30, 1951.

The average cost (excluding depreciation) per kwh of net hydro and steam power generated in Authority-owned or leased plants for the fiscal years 1951 and 1950 was:

Average cost per kwh (mills):	1951	1950
Hydro.....	.34	.29
Steam.....	3.87	5.49

The increase in hydro cost per kwh in 1951 resulted principally from a decrease in generation, inasmuch as the cost of operating hydro plants is practically independent of kwh generation. The decrease in steam cost per kwh in 1951 resulted principally from (1) an increase in generation, and (2) a decrease of 77 cents per ton in the average cost per ton of coal consumed. Due to the greater proportion of generation at the more efficient steam plants, the average coal consumption per kwh of net generation decreased from 1.12 pounds in 1950 to 1.06 pounds in 1951.

Pursuant to agreements with the Secretary of the Interior and the Corps of Engineers, the Authority receives hydro electric power generated at the Cumberland River Basin projects. During the year 1951 the Center Hill plant was placed in operation increasing the installed capacity by 135,000 kw. The agreement with the Secretary of the Interior provides that the Authority shall pay an annual charge based on the units in operation and adjusted in accord-

ance with the unregulated flow of water into the Wolf Creek reservoir. During the year 1951 the Dale Hollow and Center Hill plants supplied the system 477,936 Mkwk compared with 160,788 Mkwk in 1950, the average cost per kwk being 3.3 mills and 4.9 mills, respectively.

The Fontana agreement provides for the coordination of the operation of the ten hydro plants of the Aluminum Company of America with the Authority's power plants under an arrangement whereby the storage and release of water from the Company's plants are carried out by the Company under the Authority's direction.

During fiscal year 1951 the Company generated 1,688,939 Mkwk, 23 percent less than in 1950, and the Authority delivered to the Company 1,868,851 Mkwk, an increase over 1950 of 20.8 percent. The settlement of the 1950 strike at the Company's plants resulted in the increased deliveries by the Authority while less favorable water conditions in 1951 reduced the gross generation. At June 30, 1951, the Company owed the Authority 110,005 Mkwk compared with 112,645 Mkwk owed by the Authority to the Company at June 30, 1950. Necessary adjustments are made through subsequent agreements between the Company and the Authority as to interchange requirements. The agreement operates on a calendar year basis and generally does not provide for cash settlements.

The increase in purchased power from \$396,517 and 95,613 Mkwk in 1950 to \$2,716,343 and 724,576 Mkwk in 1951 was caused by the Authority's increased power requirements. The average cost per kwk of 3.75 mills in 1951 represents a decrease of .4 mills compared with 1950. This decrease was due to an increase in purchases of low-cost surplus energy during 1951.

Interchange transactions in 1951 resulted in net receipts of 554,750 Mkwk compared with 1950 net deliveries of 984,784 Mkwk. Of the 1951 net receipts, 510,727 Mkwk represented net billed received at a net cost of \$1,699,611 and 44,023 Mkwk represented net exchanged received. The large increase in interchange received was caused by an increase in the Authority's power requirements. At June 30, 1951, four utility systems owed the Authority 2,230 Mkwk and TVA owed one system 31 Mkwk.

Transmission and distribution expenses totaled \$5,049,456 (schedule 8), an increase of \$592,179 or 13.3 percent over 1950. At June 30, 1951, the Authority operated 7,436 circuit miles of transmission lines and 327 substations compared with 7,195 and 320 at June 30, 1950.

As provided in section 13 of the act, the Authority is required to make payment in lieu of taxes to states and counties therein. Commencing in 1949 and in succeeding years the rate of payment is 5 percent of the preceding fiscal year's gross proceeds from the sale of power, excluding power used by the Authority and sales of power to other Federal agencies for any purpose other than for resale. Payments of \$1,325,126 to states and \$1,119,670 to counties therein during 1951 decreased \$25,896 compared with the preceding year. This decrease between the two years is due principally to a small decrease in revenue during 1950 compared with 1949.

Depreciation and amortization expense of \$11,684,888 (schedule 8) represented an increase of \$782,531 or 7.2 percent over 1950. There were no major changes in depreciation rates during 1951. The principal increase in depreciation charges was \$487,414 for transmission facilities added during 1950 and 1951.

NAVIGATION OPERATIONS

In carrying out the unified development of the Tennessee River system, the Authority has developed a system of dams and reservoirs used for power, navigation, and flood control. In the operation of the dams and reservoirs, the stream flow is regulated for the purposes of promoting navigation and flood control. The operation and maintenance of the locks, maintenance of the channel, and compilation of river traffic statistics are functions of the Department of the Army. The United States Coast Guard is responsible for placing and maintaining channel markers and other aids to navigation.

In accordance with the river and harbor act approved March 3, 1909, no tolls or operating charges are collected from any vessel, dredge, or other watercraft for passing through any lock, canal, canalized river, or other work for the use and benefit of navigation belonging to the United States, except the Panama Canal (33 U. S. C. 5). Therefore the navigation facilities are not revenue-producing, except the public-use terminals the operations of which although revenue-producing are not self-supporting. The total expense (including depreciation) of navigation operations of the Authority from inception to June 30, 1951, was \$26,300,595, of which \$2,658,299 relates to the year ended June 30, 1951.

As shown in exhibit 2, the total operating expense for 1951 consists of an allocation of multiple-use common expense of \$1,799,359 and direct charges of \$858,940. This expense includes only that incurred by the Authority and should not be construed as representing the total expense of the navigation operations on the Tennessee River. The Department of the Army and Coast Guard also incurred expenses in connection with their responsibilities in the navigation program on the Tennessee River.

FLOOD CONTROL OPERATIONS

The control of floods relates not only to the Tennessee River drainage basin but also to the Mississippi River. The distance from the confluence of the Tennessee River with the Ohio River (Paducah, Kentucky) to the confluence of the Ohio River with the Mississippi River (Cairo, Illinois) is only about 47 miles

Except on the Tennessee River, the responsibility for flood control (including control on the Ohio and Mississippi Rivers) has been vested in the Department of the Army, which, under the Flood Control Act of 1944, also has certain control over the release of water from the Tennessee River when danger of floods exists in the lower Ohio and Mississippi Rivers. Working arrangements for this purpose have been established between the Department of the Army and the Authority.

No direct assessment is made against the beneficiaries of the flood control operations. Therefore the flood control operations are not revenue-producing.

The total expense (including depreciation) of flood control operations of the Authority from inception to June 30, 1951, was \$20,006,195, of which \$2,213,201 relates to the year 1951. The expense of flood control operations for the year 1951, as presented in exhibit 2, consists of an allocation of multiple-use common expense of \$1,866,620 and direct charges of \$346,581.

CHEMICAL OPERATIONS

In the discharge of its obligations under section 5 of the TVA Act, the Authority operates plants at Columbia, Tennessee, and Wilson Dam, Alabama, for the manufacture of products for agricultural and military purposes, and conducts research and pilot plant development of new or improved processes for the production of new or existing fertilizers and munitions.

As shown in exhibit 3, the net income of chemical plant operations and fertilizer and munitions research and development for the year 1951 was \$226,539 compared with a net expense of \$163,420 for 1950. This program was income-producing in 1951 for the first time, largely because of the increase in revenue from byproduct recoveries relating to production of previous years. The Authority states that the chemical plant operations are conducted on an experimental basis, and consequently production costs are affected by the developmental nature of the manufacturing operations.

A summary of sales and related information, by products, for the fiscal years 1951 and 1950, prepared from the Authority's cost statements, follows.

	1951	1950	Increase (*decrease)
Concentrated superphosphate:			
Tons sold (P ₂ O ₅).....	67,250	63,877	3,373
Sales.....	\$6,189,274	\$5,988,642	\$200,632
Net operating income (expense).....	163,322	(175,616)	338,938
Selling price per ton.....	92.03	93.75	1.72*
Cost per ton.....	89.61	96.50	6.89*
Calcium metaphosphate:			
Tons sold (P ₂ O ₅).....	15,073	4,177	10,896
Sales.....	\$1,357,257	\$362,496	\$994,761
Net operating income (expense).....	(28,464)	(71,063)	42,599
Selling price per ton.....	90.05	86.78	3.27
Cost per ton.....	91.93	103.80	11.87*
Dicalcium phosphate:			
Tons sold (dry).....	319	49,439	49,120*
Sales.....	\$21,465	\$3,300,513	\$3,279,048*
Net operating income.....	164	331,392	331,228*
Selling price per ton.....	67.29	66.76	.53
Cost per ton.....	66.77	60.06	6.71
Phosphorus:			
Tons sold (P ₄).....	5,209		5,209
Sales.....	\$1,364,427	\$-----	\$1,364,427
Net operating income.....	318,071		318,071
Selling price per ton.....	261.93		261.93
Cost per ton.....	200.87	217.77	16.90*
Ammonium nitrate fertilizer:			
Tons sold (dry).....	135,808	136,448	640*
Sales.....	\$7,173,222	\$7,528,069	\$354,847*
Net operating income.....	1,088,512	1,320,376	231,864*
Selling price per ton.....	52.82	55.17	2.35*
Cost per ton.....	44.80	45.49	.69*
Fused tricalcium phosphate:			
Tons sold (P ₂ O ₅).....		1	1*
Sales.....		\$61.00	\$61.00*
Net operating income.....			
Selling price per ton.....		61.00	61.00*
Cost per ton.....		61.00	61.00*
Total sales.....	\$16,105,645	\$17,179,781	\$1,074,136*
Net operating income (see note).....	1,541,605	1,405,089	136,516

NOTE: The Authority's cost statements include the cost of products disposed of plus applicable administrative and general expenses and fertilizer distribution expense. The net operating income of \$1,541,605 for 1951 and \$1,405,089 for 1950 represents the gross income from disposition of products, less administrative and general expense and fertilizer distribution expense but is before deducting certain items of other expense and research and development expenses as shown in exhibit 3.

Ammonium nitrate fertilizer continued in 1951 to account for a substantial portion of the sales as well as for the major portion of the net

operating income. Production of dicalcium phosphate (animal feed supplement) was discontinued at the beginning of the year because commercial supplies became more available and the product was considered by TVA to have no place in its normal peacetime program. In 1951 phosphorus (sold principally to other Federal agencies) was considered as a separate product because of the volume. A small amount of phosphorus was sold during 1950, but the revenue was treated as a reduction of cost of other phosphate products.

The decreases in the per ton unit costs of concentrated superphosphate (\$6.89), calcium metaphosphate (\$11.87), and phosphorus (\$16.90) were caused to a large extent by the increase in revenues from byproducts. Recoveries from byproducts credited to the costs of phosphorus and related phosphate products during 1951 include \$582,467 from sale of 18,456 tons of byproduct ferrophosphorus, of which 8,677 tons were considered to have been produced in 1951 and 9,779 tons in prior years. The comparable amount credited to costs during 1950 was \$175,830 from sale of 3,473 tons. Ammonium nitrate fertilizer cost decreased chiefly because of the change from the graining process to the more economical crystallization process in the manufacture of this product.

The products manufactured are disposed of principally through sales, which accounted for 93 percent of the disposition of products in 1951. The remainder of the chemical products are used in the Authority's programs at cost (largely in fertilizer tests and demonstrations). Transfers of fertilizer products to these programs during 1951 amounted to \$1,226,192, a decrease of \$254,463 from the preceding year.

Other expenses, as classified by the Authority and shown in exhibit 3, amounted to \$819,873 for 1951. These include administrative and general expenses of \$513,397 and fertilizer distribution expenses of \$92,671. These costs have been included in our comments by products, inasmuch as they are for the most part so assignable.

The principal additional items included in other expenses were preliminary operations of new processes of \$118,479 and net losses on retirements of manufacturing plant and equipment of \$81,571. The first item includes excess costs incurred in production before the new facilities are accepted as the responsibility of the production department and related principally to phosphate facilities.

The Authority states that the scope of fertilizer and munitions research and development activities is determined by opportunities to render service in the public interest, and research findings are made available to the public through technical publications, answers to correspondence, and discussions with technical visitors to the laboratories and plants.

The expenses in this connection as classified by the Authority are included in exhibit 3 and are summarized:

	<i>Year ended June 30</i>	
	<u>1951</u>	<u>1950</u>
Direct expense:		
Research (primarily laboratory)	\$233, 653	\$273, 118
Development	446, 059	528, 742
	<hr/>	<hr/>
Supervision and other general expenses	679, 712	801, 860
	421, 549	484, 901
	<hr/>	<hr/>
Total	\$1, 101, 261	\$1, 286, 761
	<hr/>	<hr/>

Because of their technical nature, we have made no attempt to evaluate the accomplishments of these activities or the justification of the expenditures.

DEVELOPMENT ACTIVITIES

The Authority is engaged in various activities relating to the physical, economic, and social development of the Tennessee River drainage basin and adjoining territory. However, the tests and demonstrations of fertilizers are conducted on farms located in various parts of the United States as well as in the Tennessee Valley region. Although certain of the activities are carried on primarily for the benefit of the Tennessee Valley, these activities are applicable to and benefit other regions of the United States. They are comparable, in varying degrees, with similar activities carried on by other Federal agencies in other parts of the United States. The degree to which these activities are coordinated and cooperatively undertaken by the Authority and other Federal agencies varies considerably.

The total cost of the development activities reported by the Authority from inception to June 30, 1951, was \$55,575,861. However, because of the Authority's various changes of the classification of cost, particularly in the fiscal year 1944, the \$55,575,861 does not reflect the cost of the development activities on the basis that they were generally classified for 1944 and subsequent years.

Consequently, in order to determine the total direct cost for each activity from inception of the Authority to June 30, 1951, the accounts for the various years accumulating the direct cost of the activities have been recast by us on the basis of the title of the accounts (without analysis) into the classification of direct cost as reported by the Authority for the year 1944. On the basis of the above classification, the approximate cost (excluding administrative and general expenses) of the development activities from inception of the Authority to June 30, 1951, was:

<u>Activity</u>	<u>Amount</u>	<u>Percent</u>
Agricultural resource development (including fertilizer used in tests and demonstrations—\$21,200,000, 34.25 percent of the total).....	\$36,900,000	59.61
Forest resource development.....	7,500,000	12.12
Mineral resource development.....	3,600,000	5.82
Recreational resource development.....	1,800,000	2.90
Stream sanitation and public health.....	2,000,000	3.23
Fish and game investigations.....	1,200,000	1.94
Mapping (topographic and other).....	6,200,000	10.01
Transportation and industrial economic studies.....	1,000,000	1.62
Advisory assistance to state and local governments.....	1,000,000	1.62
Other studies (which may apply in part to certain of the above activities).....	700,000	1.13
	<u>\$61,900,000</u>	<u>100.00</u>

The benefits from the individual programs may vary considerably; they may accrue to many or to few; and to a considerable extent they may be intangible and not subject to precise measurement. We do not, therefore, undertake to evaluate them or to pass judgment as to their relative expediency or necessity.

During the year 1951 the total net expense of the development activities was \$4,234,347. This expense is detailed and compared with that for the preceding year in exhibit 4.

ADMINISTRATIVE AND GENERAL EXPENSES

These expenses as defined in the Independent Offices Appropriation Act, 1951 (Public Law 759, 81st Cong.), include the costs of all administrative offices and other activities representing management and other functions serving the programs and projects of the Authority in general. The actual expenses of \$4,146,104 were \$103,896 less than the limitation of \$4,250,000 provided in the above act as amended by the Supplemental Appropriation Act, 1951 (Public Law 843, 81st Cong.). Administrative and general expenses and the distribution for the year 1951 are presented in schedule 14.

CASH IN UNITED STATES TREASURY

All cash transactions of the Authority are handled through accounts maintained with the United States Treasury. The cash balance at June 30, 1951, amounted to \$171,295,469. After deducting from this amount the net amount of current liabilities less current receivables, the unexpended balance of funds was \$144,397,281 consisting of (1) corporate funds \$35,863,376, (2) continuing fund \$1,000,000, and (3) appropriated funds \$107,533,905. Materials and services contracted for and not delivered applicable to appropriated funds amounted to \$106,683,714 leaving an unobligated balance of appropriated funds of \$850,191 at June 30, 1951.

The Authority's cash balance does not include unexpended cash balances of \$8,499,358 at June 30, 1951, advanced from other Federal agencies for certain reimbursable services to be performed. These advances have been offset against the corresponding liabilities and do not appear in the balance sheet.

CURRENT AND ACCRUED LIABILITIES

These liabilities at June 30, 1951, totaled \$36,532,126 compared with \$16,663,619 at June 30, 1950. Accounts payable of \$27,343,355 increased \$19,186,846 compared with the preceding year. This was due primarily to the substantial increase in the construction program. Accrued payroll increased \$851,721 compared with the preceding year, due principally to a greater number of construction employees at June 30, 1951.

CONTRIBUTIONS IN AID OF CONSTRUCTION

Contributions in aid of construction represent cash or property contributed to the Authority by power customers. They were reclassified as a separate item during 1951 in order to comply with a change in requirements of the Federal Power Commission. Previously they were applied against the fixed assets.

RECOMMENDATIONS TO THE CONGRESS

Provisions of The Government Corporations Appropriation Act, 1948, fix the repayable Government investment in the power program on June 30, 1947, at \$348,239,240, and direct payment of this amount into the United States Treasury at a rate of not less than

\$87,059,810 within each succeeding 10-year period. Additional appropriations for power facilities are required to be amortized within 40 years after the year in which the facilities go into operation. At June 30, 1951, the Government investment, adjusted for these repayments and additions, was \$467,280,378. Interest is paid only on \$44,000,000 (represented by bonds held by the Treasury), and the Authority does not bear the expense to the Government of obtaining and supplying the remaining \$423,280,378 of the investment. Nor does the Authority bear the expense to other agencies of the Government for services supplied by them in the form of retirement and compensation benefits to employees.

Section 14 of the Tennessee Valley Authority Act declares—as a matter of policy—that, in order as soon as practicable to make the power projects self-supporting and self-liquidating, surplus power shall be sold at rates which, in the opinion of the board, will produce gross revenues in excess of the cost of production of the power. Unless all important items of cost are included in the Authority's statement of power operations, the relationship between gross revenues and costs cannot be completely established and it cannot be shown authoritatively that the power operations are self-supporting and self-liquidating. However, power earnings after depreciation have been more than sufficient to cover imputed interest.

The principal objection advanced by the Authority to payment of interest appears to be that the Government, as the sole owner of the power program, is in the position of a stockholder rather than a creditor, and as such should not require payment of interest on its equity (especially since no private utility is bonded to 100 percent of the investment and required to pay interest on the entire funds invested). Among other things, the suggestion is made that an interest requirement in addition to the existing statutory amortization requirement might drain off so much cash that accomplishment of the directed objectives of the program in a satisfactory manner would be difficult or impossible. It is also pointed out that adequate provisions for depreciation recovered through earnings provide ample protection for the Government's investment. As to reimbursement of the costs of retirement and compensation benefits, it is understood that the Authority would prefer to integrate the services involved into its own administration of employee relations.

No investment is made without cost—whether it takes the form of payments pursuant to appropriations, for capital stock, or to supply loans—and the Government's cost of the investment in the power program is measurable with reasonable accuracy by the cost to the Treasury for public debt borrowings. However, to the extent that the payment of both interest and amortization of investment might result in a lack of cash or otherwise impair the sound conduct of the power program, the objection of the Authority appears valid. In our opinion the amortization requirement should be subordinated to the more basic need to show on the Authority's books the expense incurred by the Government for its investment in the TVA power program.

We believe that the matters of interest and amortization on the power investment should be considered concurrently as they are interdependent.¹

¹ For possible methods see recommendations 3 and 5 of the 1949 audit report, H. Doc. 442, 81st Cong.

Accordingly, we recommend that the Authority be directed to pay (1) the cost to the United States Treasury, as determined by the Secretary, of funds represented by the net investment of the Government in the power program determined in accordance with the formula adopted in the 1948 act (and that the amortization requirement be modified when necessary), and (2) the cost of retirement and compensation benefits incurred on behalf of employees by other agencies of the Government (unless or until the Authority shall obtain legislative approval of arrangements to integrate such services with its own activities and to bear the cost).

In our audit report for the fiscal year 1949 (H. Doc. 442, 81st Cong.) we made six specific recommendations to the Congress and commented on the review of the multiple-purpose allocation percentages by the Federal Power Commission. Two of these recommendations, relating to payment of interest on power investment and reimbursement of cost of retirement and compensation benefits, were contained in our audit report for the fiscal year 1950 (H. Doc. 33, 82nd Cong.) and are discussed above. The remaining four recommendations, as well as the discussion of the reasonableness of the multiple-purpose allocation percentages, after having received further consideration, have not been renewed at this time. However, we may consider it advisable at some future time to restate some or all of the recommendations, or if the Congress desires to consider them with a view to enacting appropriate legislation, specific comments will be furnished to the Congress upon request.

RECOMMENDATIONS TO THE AUTHORITY

During our audit we observed various accounting procedures and practices followed by the Authority which we believed could be strengthened or improved. Our observations were brought to the attention of and discussed with the comptroller's office of TVA, and in many cases the recommendations have been put into effect.

RETIREMENT SYSTEM OF THE TENNESSEE VALLEY AUTHORITY

The audit of the retirement system for the year ended June 30, 1951, was satisfactorily completed under our direction by Lybrand, Ross Bros. & Montgomery, a firm of certified public accountants employed for that purpose under the provisions of section 301 (b) of the Government Corporation Control Act. Financial statements for the fiscal year, together with the auditors' opinion thereon, are contained in the appendix.

SCOPE OF AUDIT

We have examined the balance sheet of the Tennessee Valley Authority as of June 30, 1951, and the related statements of income or net expense of the Authority's several programs for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances and appropriate in view of the effectiveness of the system of internal control and the work performed by the Authority's internal auditors.

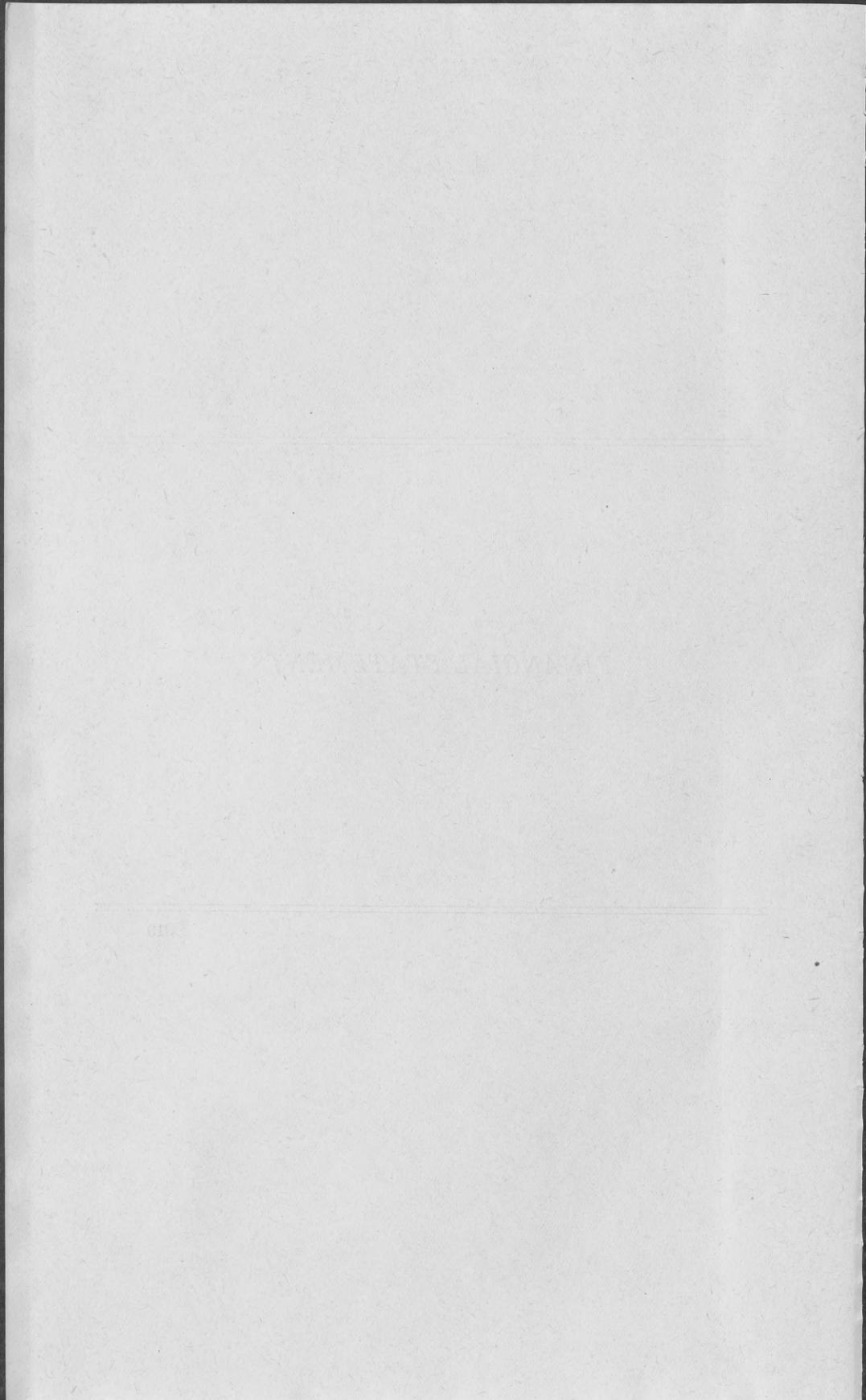
OPINION

During the examination we observed no program, expenditure, or other financial transaction or undertaking which, in view of the broad powers of the Tennessee Valley Authority Act, in our opinion, was carried on or made without authority of law.

In our opinion, the financial statements (exhibits 1 to 4, inclusive) present fairly the financial position of the Tennessee Valley Authority at June 30, 1951, and the results of its operation for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year and with applicable Federal laws.

STEPHEN B. IVES,
Director of Corporation Audits.

FINANCIAL STATEMENTS



TENNESSEE VALLEY AUTHORITY

BALANCE SHEETS--JUNE 30, 1951 AND 1950

ASSETS	June 30		LIABILITIES	June 30	
	1951	1950		1951	1950
FIXED ASSETS (note 1), including land and land rights and related costs of \$210,800,000 at June 30, 1951, and \$203,300,000 at June 30, 1950, included in completed plant; less accumulated depreciation, 1951 \$139,808,295, and 1950 \$126,692,365 (schedule 1):			INVESTMENT OF UNITED STATES GOVERNMENT (note 7):		
As allocated by TVA board (notes 2 and 7):			Appropriations by the Congress (note 4), less \$3,000,000 reserved under section 1214 of the General Appropriation Act, 1951	\$1,022,317,981	\$827,603,981
Power	\$ 495,007,552	\$469,008,082	Transfers of property, net	44,735,705	44,656,059
Navigation	141,221,198	141,600,613		<u>1,067,053,686</u>	<u>872,260,040</u>
Flood Control	167,456,104	155,432,856	Less:		
Total	803,684,854	766,041,551	Net expense from non-income-producing programs (note 5)	134,265,532	125,391,839
Chemical plant	19,934,267	18,354,702	Payments into general fund of U.S. Treasury (note 6)	42,144,796	38,144,796
General plant	10,895,730	9,173,391		<u>176,410,328</u>	<u>163,536,635</u>
Construction in progress (note 3)	125,583,846	60,757,664		890,643,358	708,723,405
Investigations for future projects	398,890	416,066	Net income from power operations since June 16, 1933, including \$25,853,112 and \$26,068,212 for the years ended June 30, 1951 and 1950, respectively (exhibit 2)	182,050,225	156,197,113
Total fixed assets	960,497,587	854,743,374	Long term debt:		
CASH AND OTHER ASSETS:			Serial bonds 1-3/4 - 2-1/2%, issued under section 15c of the TVA Act; sold to and held by the U.S. Treasury; interest rate by temporary agreement 1-7/8% at June 30, 1951, and 2% at June 30, 1950; not less than \$2,500,000 due annually by June 30 of each year (note 6)	44,000,000	49,000,000
Cash in U.S. Treasury accounts, including continuing fund of \$1,000,000 for emergency purposes provided by section 26 of the TVA Act	171,295,469	44,159,940	Total investment of United States Government	<u>1,116,693,583</u>	<u>913,920,518</u>
Balance of appropriations by the Congress, transferrable to checking accounts upon order of TVA	-	13,675,395	CURRENT AND ACCRUED LIABILITIES (note 6):		
	171,295,469	57,835,335	Accounts payable, including liabilities to Federal agencies of \$3,943,256 at June 30, 1951, and \$941,612 at June 30, 1950	27,343,355	8,156,509
Current receivables:			Employees' accrued leave	6,709,503	6,534,196
Wholesale power customers	5,181,562	4,260,620	Accrued payroll	1,800,857	949,136
Chemical products customers	1,489,099	824,575	Employees' savings bond collections	52,280	45,673
Federal agencies	2,398,567	964,889	Accrued bond interest	309,375	367,500
Employees and agents	147,840	91,231	Retirement system	316,756	610,605
Other	416,870	312,350	Total current and accrued liabilities	<u>36,532,126</u>	<u>16,663,619</u>
	9,633,938	6,453,665	ADVANCE COLLECTION OF RENT ON MEMPHIS STREAM PLANT	990,032	1,133,170
Inventories, at cost or less:			CONTRIBUTIONS IN AID OF CONSTRUCTION	279,043	-
Power materials and supplies	7,134,101	7,548,984			
Chemical products manufactured and in process	1,567,908	1,568,398			
Chemical raw materials and supplies	3,881,201	3,019,341			
Test-demonstration fertilizer stored with distributors	28,431	110,583			
Materials and supplies for general use	456,149	437,627			
	13,067,790	12,684,933			
Total cash and other assets	193,997,197	76,973,933			
	<u>\$1,154,494,784</u>	<u>\$931,717,307</u>		<u>\$1,154,494,784</u>	<u>\$931,717,307</u>

NOTES TO FINANCIAL STATEMENTS AT JUNE 30, 1951

1. *Fixed assets*—The major portion of the fixed assets consists of properties constructed or developed by TVA and is stated at cost to TVA. The remainder is comprised of properties acquired from utility companies and properties transferred from the Department of the Army. Properties acquired from utility companies have been restated on the basis of original cost when first devoted to public service. Properties transferred from the Department of the Army determined by TVA to contribute to its operations have been recorded at appraised values or reported cost (including accrued depreciation) as of the date of acquisition, while those properties determined by TVA to contribute no value to its operations have been recorded at nominal amounts.

2. *Allocation of cost of multiple-use facilities and distribution of common expense*—Section 14 of the TVA Act requires that TVA's board of directors, subject to the approval of the President of the United States, allocate to the various purposes served the cost of multiple-use facilities as they are completed and added to the system. Nine reports of such findings have been issued, the last report dated November 19, 1951, being occasioned by the addition of South Holston Dam to the system during the year ended June 30, 1951. Except during the period of emergency war power demand, the procedure in each allocation has been to consider all completed dams as a system rather than separate projects and to allocate to power, navigation, and flood control, on the basis of newly determined percentages applicable to all multipurpose investment, the costs of that portion of the structures which serves all three purposes jointly. The costs of that portion of the dams and related facilities which have been installed exclusively for a single purpose are assigned directly to the particular purpose served.

Maintenance and depreciation expenses relating to the common property are distributed among the power, navigation, and flood control operations on the basis of the percentages applied in the allocation of common investment. Prior to 1951 other common expenses were divided equally among the three programs. During fiscal year 1951 a study of the distribution of these expenses was completed, resulting in the adoption of a distribution of 40 percent to power, 30 percent to navigation, and 30 percent to flood control.

3. *Estimates of cost to complete major construction projects and commitments*—The cost to complete the major dam and power projects under construction or authorized for construction is estimated at present to be \$564,000,000. The portion of the foregoing estimate of cost to complete the projects under construction includes materials and services contracted for and not delivered at June 30, 1951, aggregating \$114,273,000. Additional contractual commitments of \$57,110,000 had been entered into at June 30, 1951, on which TVA's obligation is limited by the availability of funds from appropriations by the Congress for succeeding fiscal periods. Since the Authority uses the accrual system of accounting, it has not included these items in its financial statements.

4. *Appropriations by the Congress*—An additional appropriation of \$238,389,600 has been made available as of July 1, 1951, under the provisions of Independent Offices Appropriation Act, 1952, approved August 31, 1951.

5. *Net expense of non-income-producing programs*—The net expense of the several non-income-producing programs, including depreciation, was as follows:

	June 30, 1951	June 30, 1950
Total for the periods June 16, 1933, through June 30, 1950, and June 30, 1949:		
Navigation operations.....	\$23,642,296	\$20,845,851
Flood control operations.....	17,792,994	15,461,473
Other programs.....	83,956,549	78,992,471
	125,391,839	115,299,795
For the years ended June 30, 1951, and June 30, 1950:		
Navigation operations (exhibit 2).....	2,658,299	2,796,445
Flood control operations (exhibit 2).....	2,213,201	2,331,521
Chemical plant operations and fertilizer and munitions research and development (exhibit 3).....	226,539*	163,420
Development activities (exhibit 4).....	4,234,347	4,830,418
Operation of Norris and Wilson villages, including net profit on sales of village properties.....	-----	11,550*
Interest income from purchasers of village properties.....	5,724*	18,210*
Maintenance of bridges constructed by others on TVA dams under the provisions of Public Law 562, 79th Congress.....	109	-----
	8,873,693	10,092,044
Total.....	\$134,265,532	\$125,391,839

*Deduction.

6. *Payments into the general fund of the United States Treasury*—Title II of The Government Corporations Appropriation Act, 1948, requires TVA during the period ending June 30, 1958, to make payments into the United States Treasury from net power proceeds totaling not less than \$87,059,810 and an equivalent amount during each succeeding 10-year period until an aggregate of \$348,239,240 has been paid. Of the payments made each year not less than \$2,500,000 must be applied as a reduction of the outstanding long term indebtedness. New congressional appropriations for power facilities must be repaid over a period not to exceed 40 years after the year in which the facilities go into operation; the additional amount payable under this provision was \$41,119,571 at June 30, 1951. The total payments made by TVA from net power proceeds since enactment of this legislation amount to \$30,500,000.

In addition, section 26 of the TVA Act provides that the board of directors must make a determination, before the end of the calendar year 1951, as to what portion of the unexpended proceeds derived from power operations (\$31,816,251) and other sources (\$4,047,125) at June 30, 1951, is necessary for (a) the purposes enumerated in section 26 of the act, and (b) expenditures for the alteration, reconstruction, or relocation of certain highway and railroad bridges under the provision of Public Law 301, 77th Congress (16 U. S. C. 831c-1). Any balance determined not to be necessary for the purposes enumerated must be paid into the general fund of the United States Treasury by the end of the calendar year.

7. *Requirements of applicable Federal laws affecting the financial statements*—The TVA Act and other Federal laws do not provide for TVA to pay for certain costs incurred by other Federal agencies for the benefit of TVA, and consequently such costs are not included in TVA's financial statements. These costs include (1) payment of claims by the Bureau of Employees' Compensation and the related cost of administration, (2) the Government's share of the cost of carrying out the provisions of the civil service retirement acts applicable to the Authority's civil service employees, and (3) reimbursement to the United States Treasury for its cost of interest on funds furnished for the Authority's power program, other than that portion represented by long term debt.

The payment of the foregoing costs by the Authority, especially the payment of interest, would have a material effect on the financial position and results of power operations as reported by the Authority.

As stated in note 2, the cost of operation of multiple-use facilities common to the power, navigation, and flood control programs are allocated to these programs on the basis of two sets of percentages, one of which is determined in accordance with the TVA Act and is also used to allocate the investment in multiple-use facilities. TVA's financial statements are prepared on the basis of, and accordingly are subject to the soundness of, the allocation percentages adopted by TVA.

T E N N E S S E E V A L L E Y A U T H O R I T Y

STATEMENT OF POWER, NAVIGATION, AND FLOOD CONTROL OPERATIONS
FOR THE YEARS ENDED JUNE 30, 1951 AND 1950

POWER OPERATIONS	1951			1950		
	Mkwh	Per kwh (mills)	Total	Mkwh	Per kwh (mills)	Total
REVENUES:						
Sales of electric energy:						
Municipalities and cooperatives	8,828,017	4.26	\$37,642,980	7,267,924	4.30	\$31,250,296
Commercial and industrial	4,451,928	3.73	16,607,635	3,687,377	3.20	11,789,769
Federal agencies	2,190,742	3.73	8,162,812	1,968,759	3.53	6,956,322
Electric utilities	434,206	12.91	5,604,712	649,845	8.52	5,536,571
Retail	8,220	10.14	83,341	7,440	10.27	76,377
Total outside sales	15,913,113	4.28	68,101,480	13,581,345	4.09	55,609,335
Interdivisional sales, at rates generally comparable to rates to other customers	608,924	2.83	1,725,053	584,247	2.82	1,650,004
Total sales of electric energy	16,522,037	4.23	69,826,533	14,165,592	4.04	57,259,339
Rents and other revenues:						
Outside sources			479,484			486,831
Interdivisional rents			23,563			39,941
Total operating revenues			70,329,580			57,786,111
	Direct	Common (schedule 12)		Direct	Common	
EXPENSE (note 7 and schedule 8):						
Production:						
Generation expense	\$14,850,617	\$1,300,902	16,151,519	\$ 9,592,368	\$1,115,129	10,707,497
Purchased power	2,716,343	-	2,716,343	396,517	-	396,517
Interchange power received	2,267,749	-	2,267,749	679,981	-	679,981
Interchange power delivered	568,138*	-	568,138*	2,112,311*	-	2,112,311*
Total production expense	19,266,571	1,300,902	20,567,473	8,556,555	1,115,129	9,671,684
Transmission (schedule 11)	5,030,603	-	5,030,603	4,439,283	-	4,439,283
Distribution (schedule 11)	18,853	-	18,853	17,994	-	17,994
Customers' accounting and collecting (schedule 11)	71,323	-	71,323	50,333	-	50,333
Sales promotion (schedule 11)	313,731	-	313,731	328,700	-	328,700
Payments in lieu of taxes, as required by section 13 of the TVA Act	2,444,796	-	2,444,796	2,470,692	-	2,470,692
Administrative and general expenses (schedule 11)	3,299,312	107,691	3,407,003	2,735,868	85,188	2,821,056
Other expense	74,115	-	74,115	78,058	-	78,058
Provision for depreciation	10,405,241	1,079,647	11,484,888	9,636,305	1,066,052	10,702,357
Amortization of electric plant acquisition adjustments	200,000	-	200,000	200,000	-	200,000
Total operating expense	\$41,124,545	\$2,488,240	43,612,785	\$28,513,788	\$2,266,369	30,780,157
NET REVENUE FROM OPERATIONS			26,716,795			27,005,954
INTEREST --excess of interest on funded debt (\$863,991 for 1951 and \$938,451 for 1950) over interest earned (\$308 for 1951 and \$709 for 1950) (note 7)			863,683			937,742
Net power income			\$25,853,112			\$26,068,212

*Deduction

TENNESSEE VALLEY AUTHORITY

STATEMENT OF POWER, NAVIGATION, AND FLOOD CONTROL OPERATIONS (continued)

FOR THE YEARS ENDED JUNE 30, 1951 AND 1950

NAVIGATION OPERATIONS	1951			1950		
	Direct	Common (schedule 12)	Total	Direct	Common	Total
<u>EXPENSE</u> (note 7):						
Study and development of river transportation (including provision for depreciation of \$2,610 for 1951 and \$3,153 for 1950)	\$ 209,017	\$ -	\$ 209,017	\$ 230,653	\$ -	\$ 230,653
Net expense of public-use river terminal operations (including provision for depreciation of \$29,663 for 1951 and \$29,929 for 1950)	58,379	-	58,379	33,566	-	33,566
Other operation	7,077	916,065	923,142	7,845	1,060,983	1,068,828
Other maintenance	4,931	54,636	59,567	-	38,833	38,833
Administrative and general expenses (schedule 14)	16,636	80,768	97,404	15,466	85,189	100,655
Provision for depreciation	562,900	747,890	1,310,790	554,905	769,005	1,323,910
Net expense of navigation operations	<u>\$ 858,940</u>	<u>\$1,799,359</u>	<u>\$ 2,658,299</u>	<u>\$ 842,435</u>	<u>\$1,954,010</u>	<u>\$ 2,796,445</u>
<u>FLOOD CONTROL OPERATIONS</u>						
<u>EXPENSE</u> (note 7):						
Studies and investigations	\$ 47,228	\$ -	\$ 47,228	\$ 71,525	\$ -	\$ 71,525
Operation	-	916,065	916,065	-	1,060,983	1,060,983
Maintenance	-	59,597	59,597	-	40,771	40,771
Administrative and general expenses (schedule 14)	5,725	80,768	86,493	4,051	85,188	89,239
Provision for depreciation	293,628	810,190	1,103,818	266,689	802,314	1,069,003
Total expense of flood control operations	<u>\$ 346,581</u>	<u>\$1,866,620</u>	<u>\$ 2,213,201</u>	<u>\$ 342,265</u>	<u>\$1,989,256</u>	<u>\$ 2,331,521</u>

T E N N E S S E E V A L L E Y A U T H O R I T Y

STATEMENT OF CHEMICAL PLANT OPERATIONS AND FERTILIZER AND MUNITIONS RESEARCH AND DEVELOPMENT

FOR THE YEARS ENDED JUNE 30, 1951 AND 1950

(See notes)

	<u>June 30</u>	
	<u>1951</u>	<u>1950</u>
<u>CHEMICAL PLANT OPERATIONS:</u>		
Disposition of products:		
Sales:		
Federal agencies	\$ 1,165,747	\$ 11,163
Cooperatives and others	<u>14,939,898</u>	<u>17,168,618</u>
	16,105,645	17,179,781
Shipped for tests and demonstrations, at cost (exhibit 4)	1,214,509	1,472,181
Used in other activities, at cost	<u>11,683</u>	<u>8,474</u>
Total disposition of products	<u>17,331,837</u>	<u>18,660,436</u>
Cost of products disposed of:		
Materials used	4,918,350	5,427,319
Direct manufacturing expense	7,627,483	7,757,224
Indirect manufacturing expense	1,260,602	1,286,151
Provisions for depreciation and depletion	848,093	848,134
Recoveries from byproducts and in-process materials	<u>739,165*</u>	<u>419,115*</u>
Manufactured	13,915,363	14,899,713
Finished inventory changes	<u>6,019</u>	<u>445,941</u>
Shipped	13,921,382	15,345,654
Direct shipping expense	1,113,148	1,305,746
Indirect shipping expense	126,293	141,526
Provision for depreciation	<u>23,341</u>	<u>22,971</u>
Total cost of products disposed of	<u>15,184,164</u>	<u>16,815,897</u>
Gross income from disposition of products, without allowance for research costs	<u>2,147,673</u>	<u>1,844,539</u>
Other expenses:		
Administrative and general expenses (schedule 14)	513,397	374,098
Fertilizer distribution expense	92,671	65,536
Preliminary operations of new processes	118,479	111,654
Maintenance of idle plant and equipment	3,181	7,907
Provision for depreciation on idle manufacturing plant and equipment	9,480	6,142
Retirements of manufacturing plant and equipment	81,571	113,239
Abandonment of proposed phosphate plant at Mobile, Alabama	-	42,050
Operation of phosphate lands for agricultural purposes	4,857*	3,498*
Provision for doubtful accounts	4,049*	4,070
Provision for contingent liabilities	<u>10,000</u>	<u>-</u>
Total other expenses	<u>819,873</u>	<u>721,198</u>
Net income from chemical plant operations, without allowance for research costs	<u>1,327,800</u>	<u>1,123,341</u>

*Deduction

92557 O - 52

27

TENNESSEE VALLEY AUTHORITY

STATEMENT OF CHEMICAL PLANT OPERATIONS AND FERTILIZER AND MUNITIONS RESEARCH AND DEVELOPMENT
(continued)
FOR THE YEARS ENDED JUNE 30, 1951 AND 1950

(See notes)

	June 30	
	1951	1950
<u>FERTILIZER AND MUNITIONS RESEARCH AND DEVELOPMENT:</u>		
Preliminary research on nitrogen and its compounds	\$ 19,710	\$ 15,927
Preliminary research on phosphorus and its compounds	213,943	257,005
Preliminary research on potassium fertilizer	-	186
Development of fused phosphate processes	64,403	43,655
Development of phosphorus processes	6,821	32,115
Development of superphosphate processes	67,977	81,979
Development of combination fertilizer processes	200,238	256,617
Development of synthetic ammonia and ammonium nitrate processes	22,442	24,743
Development of processes for recovery of byproduct fluorine	15,735	22,680
Development of metaphosphate processes	15,118	4,875
Development of ammonium phosphate processes	36,818	6,243
Development of methods for preparation of raw phosphate for phosphatic processes	6,699	29,066
Development of other chemical processes	9,808	26,769
General research expense, including supervision, services, equipment and supplies, and other indirect expenses	332,278	426,751
Provision for depreciation	54,158	-
Retirements of research plant and equipment	-	6,688*
Administrative and general expenses (schedule 14)	35,113	64,833
	<u>1,101,261</u>	<u>1,286,761</u>
<u>NET INCOME (EXPENSE) OF CHEMICAL PLANT OPERATIONS AND FERTILIZER AND MUNITIONS RESEARCH AND DEVELOPMENT</u>	<u>\$ 225,539</u>	<u>\$ (163,420)</u>

*Deduction

Notes:

- In the discharge of its obligations under section 5 of the TVA Act, TVA operates plants at Columbia, Tennessee, and Wilson Dam, Alabama, for the manufacture of products for agricultural and military purposes, and conducts research and pilot plant development of new or improved processes for the production of new or existing fertilizers and munitions. Chemical plant operations are conducted on an experimental basis, and consequently production costs are affected by the developmental nature of the manufacturing operations. "Fertilizer and munitions research and development" activities are not scaled to TVA's chemical plant operations; their scope is determined by opportunities to render service in the public interest, and research findings are made available to the public through technical publications, answers to correspondence, and discussions with technical visitors to the laboratories and plants. For these reasons and because it would be impracticable to do so, TVA does not undertake to allocate any portion of "fertilizer and munitions research and development" expenditures to its chemical plant operations.
- Sales of fertilizer materials are not on a commercial basis but are made to organizations collaborating in a broad educational program aimed at bringing about increased soil fertility through improved farming practices.
- No depreciation is charged to chemical plant operations for a portion of nitrate plant No. 2 acquired in 1933 from Department of the Army and used in the production of fertilizer, as it is considered by the Authority to contribute no value to such operations because of added costs occasioned by its use.

TENNESSEE VALLEY AUTHORITY

STATEMENT OF DEVELOPMENT ACTIVITIES
FOR THE YEARS ENDED JUNE 30, 1951 AND 1950

	June 30	
	1951 (schedule 13)	1950
<u>AGRICULTURAL RESOURCE DEVELOPMENT</u> --A program to promote agricultural development and watershed protection, carried out in cooperation with Federal, state, and local governmental agencies and with individual farmers and their associations:		
Fertilizer shipped for tests and demonstrations	\$1,214,509	\$1,472,181
Change in test-demonstration fertilizer inventory	<u>82,152</u>	<u>7,174*</u>
Fertilizer used in tests and demonstrations	1,296,661	1,465,007
Income from test-demonstration fertilizer	259,668*	255,118*
Other material used in tests and demonstrations	3,032	2,660
Test-demonstration planning and supervision	668,309	752,383
Preliminary soil and fertilizer investigations	192,313	165,407
Farm classification and soil surveys	61,760	64,586
Development and demonstration of farm equipment	112,400	159,693
Development of processes for agricultural products	<u>74,627</u>	<u>137,906</u>
	<u>2,149,434</u>	<u>2,492,524</u>
<u>FOREST RESOURCE DEVELOPMENT</u> --A program to promote watershed protection and forest development and utilization; conducted in cooperation with state and local conservation agencies, the U.S. Forest Service, and other Federal agencies:		
Studies of forest resources and management	245,994	268,539
Assistance in forest management and reforestation	409,770	455,431
Development of forest products and utilization processes	<u>52,543</u>	<u>52,543</u>
	<u>708,307</u>	<u>776,513</u>
<u>MINERAL RESOURCE DEVELOPMENT</u> --Field investigations of Tennessee Valley minerals, and research and development of processes for their utilization	<u>92,971</u>	<u>119,684</u>
<u>RECREATIONAL RESOURCE DEVELOPMENT</u> --A program to encourage the development by state and local agencies and individuals of recreational resources on TVA properties and in areas throughout the region	<u>191,921</u>	<u>228,241</u>
<u>STREAM SANITATION AND PUBLIC HEALTH</u> --Activities conducted in cooperation with U.S. Public Health Service and state and local agencies to promote the prevention and control of pollution in the Tennessee River system, and to strengthen available public health services where related to TVA programs:		
Stream sanitation investigations	100,170	104,690
Public health studies and assistance	<u>30,295</u>	<u>35,536</u>
	<u>130,465</u>	<u>140,326</u>
<u>FISH AND GAME INVESTIGATIONS</u> --Conducted in cooperation with state and local agencies and U.S. Fish and Wildlife Service, to acquire factual information essential to the development of Tennessee Valley fish and game resources	<u>87,803</u>	<u>103,661</u>
<u>TOPOGRAPHIC MAPPING</u> --Maps of areas in the Tennessee Valley prepared in cooperation with the U.S. Geological Survey for use by TVA and other Federal, state, and local agencies	<u>347,916</u>	<u>465,264</u>
<u>SPECIAL STUDIES AND ACTIVITIES</u> --Carried out to develop the economy and resources of the Tennessee Valley region:		
Transportation and industrial economic studies	133,766	131,005
Advisory assistance to state and local governments	116,083	114,746
Studies of resource development methods and opportunities	20,409	3,055
Studies of relationship between the Tennessee and Cumberland Valleys	<u>17,309</u>	<u>23,402</u>
	<u>287,567</u>	<u>272,208</u>
<u>ADMINISTRATIVE AND GENERAL EXPENSES</u> (schedule 14)	<u>237,963</u>	<u>231,997</u>
<u>NET EXPENSE OF DEVELOPMENT ACTIVITIES</u>	<u>\$4,234,347</u>	<u>\$4,830,418</u>

*Deduction

TENNESSEE VALLEY AUTHORITY

SUMMARY OF FIXED ASSETS AND RELATED DEPRECIATION

JUNE 30, 1951

	Fixed assets		Depreciation	
	Net investment	Gross investment	Accumulated balance at June 30, 1951	Provision for year ended June 30, 1951
<u>POWER (schedule 2):</u>				
Production plant:				
Hydro:				
Multiple-use:				
Direct	\$138,352,420	\$ 170,429,566	\$ 32,077,146	\$ 3,475,503
Allocations (41.5%)	153,274,011	164,541,043	11,267,032	1,079,647
Total	291,626,431	334,970,609	43,344,178	4,555,150
Single-use	40,129,848	48,718,371	8,588,523	642,501
Total	331,756,279	383,688,980	51,932,701	5,197,651
Steam	17,923,042	33,252,652	15,329,610	932,927
Total production plant	349,679,321	416,941,632	67,262,311	6,130,578
Transmission	138,940,145	165,431,736	26,491,591	4,943,310
Distribution	116,576	219,439	102,863	4,779
General, including communication	5,333,857	7,718,635	2,384,775	406,221
Plant held for future use	68,176	400,087	331,911	-
Other structures	495,156	1,124,400	629,244	-
Unamortized acquisition adjustments	374,321	374,321	-	-
Total power	495,007,552	592,210,250	97,202,698	11,484,888
<u>NAVIGATION (schedule 2):</u>				
Direct	39,654,083	45,693,009	6,038,926	562,900
Allocations (27.5%)	101,567,115	109,033,221	7,466,106	747,890
Total navigation	141,221,198	154,726,230	13,505,032	1,310,790
<u>FLOOD CONTROL (schedule 2):</u>				
Direct	52,962,265	55,257,000	2,294,735	293,628
Allocations (31%)	114,493,839	122,910,177	8,416,338	810,190
Total flood control	167,456,104	178,167,177	10,711,073	1,103,818
Total power, navigation, and flood control	803,684,854	925,103,657	121,418,803	13,899,496
<u>CHEMICAL PLANT (schedule 3)</u>	19,934,267	31,778,579	11,844,312	1,308,826
<u>GENERAL PLANT (schedule 4)</u>	10,895,730	17,440,910	6,545,180	926,983
<u>CONSTRUCTION IN PROGRESS (schedule 5)</u>	125,583,846	125,583,846	-	-
<u>INVESTIGATIONS FOR FUTURE PROJECTS (schedule 5)</u>	398,890	398,890	-	-
Total	\$960,497,587	\$1,100,305,882	\$139,808,295	\$16,135,305

T E N N E S S E E V A L L E Y A U T H O R I T Y

POWER, NAVIGATION, AND FLOOD CONTROL PLANT, AND RELATED DEPRECIATION

JUNE 30, 1951

	Plant	Depreciation	
		Accumulated balance June 30, 1951	Provision for year ended June 30, 1951
POWER FACILITIES:			
Multiple-use dams (detail on p. 2 of schedule 2)	\$334,970,609	\$ 43,344,178	\$ 4,555,150
Single-use dams (including one fully depreciated dam amounting to \$170,332):			
Reservoir land and land rights, including relocations	3,067,619	-	-
Reservoir clearing	393,649	-	-
Structures and improvements	3,239,093	-	47,397
Dams and waterways	33,268,737	-	373,756
Turbines and generators	5,437,806	-	127,905
Accessory electric equipment	1,469,461	-	50,730
Other power plant equipment	650,289	-	16,705
Roads, railroads, and bridges	1,105,967	-	23,304
Village and reservoir facilities	85,750	-	2,704
Total single-use dams	48,718,371	8,588,523	642,501
Steam plants (including two fully depreciated plants amounting to \$703,927):			
Land and land rights	361,181	-	-
Structures and improvements	6,223,682	-	115,627
Boiler plant equipment	12,300,426	-	384,833
Generators	11,045,846	-	302,670
Accessory electric equipment	2,229,790	-	73,655
Other power plant equipment	545,043	-	18,058
Rehabilitation of and additions to Wilson steam plant	546,684	-	38,084
Total steam plants	33,252,652	15,329,610	932,927
Transmission, including substations, serving wholesale and industrial customers:			
Land and land improvements:			
Land and land rights	6,491,980	-	-
Clearing land and right-of-way	4,857,243	-	-
Roads and trails	111,690	-	2,155
Structures and improvements	16,220,272	-	385,232
Station equipment	81,516,329	-	2,963,090
Towers and fixtures	16,228,507	-	323,848
Poles and fixtures	12,181,857	-	528,996
Overhead conductors and devices	27,814,988	-	739,672
Underground conduit, conductors, etc.	8,870	-	317
Total transmission	165,431,736	26,491,591	4,943,310
Rural distribution system, including land of \$2,564	219,439	102,863	4,779
General:			
Communication	5,506,618	1,360,747	308,759
Other, including land of \$152,621	2,212,017	1,024,031	97,462
Total general	7,718,635	2,384,778	406,221
Plant held for future use, including land of \$68,176	400,087	331,911	-
Other structures, including land of \$495,156	1,124,400	629,244	-
Unamortized acquisition adjustments	374,321	-	-
Total power facilities	592,210,250	97,202,698	11,484,888
NAVIGATION FACILITIES:			
Multiple-use dams (detail on p. 2 of schedule 2)	154,726,230	13,505,032	1,310,790
FLOOD CONTROL FACILITIES:			
Multiple-use dams (detail on p. 2 of schedule 2)	178,167,177	10,711,073	1,103,818
Total power, navigation, and flood control plant, and related depreciation	\$925,103,657	\$121,418,803	\$13,899,496

TENNESSEE VALLEY AUTHORITY

POWER, NAVIGATION, AND FLOOD CONTROL, PLANT, AND RELATED DEPRECIATION (continued)

JUNE 30, 1951

	Plant				Depreciation								
	Common	Power	Navigation	Flood control	Accumulated balance June 30, 1951				Provision for year ended June 30, 1951				
					Common	Power	Navigation	Flood control	Common	Power	Navigation	Flood control	
MULTIPLE-USE FACILITIES:													
Direct investment:													
Specific accounts:													
Land and land improvements:													
Reservoir land and land rights	\$ 79,811,390	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Highway, railroad, and other relocations and removals	90,738,620	-	-	-	-	-	-	-	-	-	-	-	-
Reservoir clearing	23,680,774	-	-	-	-	-	-	-	-	-	-	-	-
Total	194,230,784	-	-	-	-	-	-	-	-	-	-	-	-
Dam structure, excluding power intake section	220,599,387	-	-	-	23,814,093	-	-	-	2,346,494	-	-	-	-
Roadways	4,514,532	-	-	-	1,084,249	-	-	-	71,426	-	-	-	-
Reservoir facilities	4,928,385	-	-	-	622,552	-	-	-	114,263	-	-	-	-
Other structures and improvements	10,798,876	-	-	-	1,494,594	-	-	-	228,659	-	-	-	-
Powerhouse, including intake section	-	85,398,994	-	-	-	12,073,347	-	-	-	1,048,713	-	-	-
Turbines and generators	-	79,472,176	-	-	-	16,575,849	-	-	-	1,956,786	-	-	-
Accessory electric equipment	-	12,622,117	-	-	-	3,891,924	-	-	-	440,697	-	-	-
Other power plant equipment	-	5,920,279	-	-	-	1,527,251	-	-	-	162,107	-	-	-
Locks and appurtenances	-	-	39,342,819	-	-	-	5,716,051	-	-	-	502,150	-	-
Channel improvements	-	-	10,035,667	-	-	-	760,373	-	-	-	98,463	-	-
Total	435,071,964	183,413,566	49,378,486	-	27,015,488	34,068,371	6,476,424	-	2,760,842	3,608,303	600,613	-	-
Engineering estimates (see note):													
Increased height of:													
Bridge	104,523*	-	104,523	-	20,349*	-	20,349	-	1,390*	-	1,390	-	-
Dams and increased reservoir capacities	55,257,000*	-	-	55,257,000	2,294,735*	-	-	2,294,735	293,628*	-	-	293,628	-
Nonoverflow section to replace:													
Power intake section	12,984,000	12,984,000*	-	-	1,991,225	1,991,225*	-	-	132,800	132,800*	-	-	-
Lock section	3,790,000	-	3,790,000*	-	457,847	-	457,847*	-	39,103	-	39,103*	-	-
Total before allocation of common	396,484,441	170,429,566	45,693,009	55,257,000	27,149,476	32,077,146	6,038,926	2,294,735	2,637,727	3,475,503	562,900	293,628	-
Allocation of common facilities (41.5%, 27.5%, and 31%, respectively, except for the depreciation provision for the year, which was allocated 40.5%, 29%, and 30.5% for the first seven months and 41.5%, 27.5%, and 31% for five months)	396,484,441*	164,541,043	109,033,221	122,910,177	27,149,476*	11,267,032	7,466,106	8,416,338	2,637,727*	1,079,647	747,890	810,190	-
Total multiple-use as allocated	\$ -	\$334,970,609	\$154,726,230	\$178,167,177	\$ -	\$43,344,178	\$13,505,032	\$10,711,073	\$ -	\$4,555,150	\$1,310,790	\$1,103,818	-

*Deduction

Note: As estimated in TVA's report of allocation to the President of the United States, dated November 19, 1951.

T E N N E S S E E V A L L E Y A U T H O R I T YCHEMICAL PLANT AND ACCUMULATED DEPRECIATION AND DEPLETIONJUNE 30, 1951

<u>LAND:</u>			
Phosphate land and mineral rights		\$ 1,912,860	
Site and easements for field plant		67,461	
Mobile plant site (offered for sale)		<u>122,534</u>	\$ 2,102,855
<u>BUILDINGS AND EQUIPMENT, including actual</u>			
<u>expenditures by the Authority for the</u>			
<u>reconditioning and adaptation of used</u>			
<u>portions of nitrate plant No. 2:</u>			
Manufacturing plant and equipment:			
Phosphate facilities, field plant		2,917,600	
Phosphate facilities, Wilson Dam		6,733,910	
Nitrate facilities, Wilson Dam		<u>7,456,250</u>	17,107,760
General service facilities:			
Laboratory and service building		4,675,087	
Utility systems		4,909,428	
Other general facilities		<u>2,983,449</u>	<u>12,567,964</u>
Total chemical plant			<u>\$31,778,579</u>
<u>ACCUMULATED BALANCE FOR:</u>			
Depletion		377,405	
Depreciation		<u>11,466,907</u>	<u>\$11,844,312</u>

CONFIDENTIAL - SECURITY INFORMATION

MEMORANDUM FOR THE DIRECTOR, FBI

DATE: 10/10/50

100-100000

Reference is made to the report of Special Agent [Name] dated [Date] at [Location] regarding the activities of [Organization].

The above information was obtained from [Source] and is being furnished to you for your information.

It is noted that [Organization] is active in [Area] and is engaged in [Activity].

The information contained herein is confidential and should be handled accordingly.

Very truly yours,

[Signature]

[Title]

100-100000

100-100000

100-100000

100-100000

100

T E N N E S S E E V A L L E Y A U T H O R I T YGENERAL PLANT AND ACCUMULATED DEPRECIATIONJUNE 30, 1951

Land and land rights	\$ 496,616
Land improvements	447,624
Structures	2,320,819
General utility systems	141,614
Marine equipment	148,795
Public-use river terminals	964,652
Railways and railway equipment	236,902
Engineering equipment	262,681
Laboratory equipment	17,042
Photographic and reproduction equipment	174,374
Medical equipment	143,468
Public-use recreation facilities	3,531,900
Office furniture and equipment	2,179,150
Transportation and miscellaneous equipment	6,258,388
Alterations to leased plant	<u>116,885</u>
Total general plant	<u>\$17,440,910</u>
Accumulated depreciation	<u>\$ 6,545,180</u>
92557 O - 52	34

T E N N E S S E E V A L L E Y A U T H O R I T Y

CONSTRUCTION IN PROGRESS AND INVESTIGATIONS FOR FUTURE PROJECTS--JUNE 30, 1951

	<u>Total</u>	Land and clearing costs (see note)	<u>Construction</u>
<u>CONSTRUCTION IN PROGRESS:</u>			
Direct power:			
Steam plants under construction:			
Johnsonville	\$ 46,419,710	\$ 49,227	\$ 46,370,483
Widows Creek	13,479,534	108,005	13,371,529
Kingston	2,869,726	719,227	2,150,499
Shawnee	<u>9,199,232</u>	<u>96,129</u>	<u>9,103,103</u>
Total steam plants	71,968,202	972,588	70,995,614
Fort Patrick Henry single-use dam	621,135	423,117	198,018
Installation of additional generating units	16,980,441	-	16,980,441
Power service building	3,480,240	-	3,480,240
Transmission lines, substations, and other additions to power facilities	<u>20,029,292</u>	<u>2,659,668</u>	<u>17,369,624</u>
Total direct power	<u>113,079,310</u>	<u>4,055,373</u>	<u>109,023,937</u>
Multiple-use facilities:			
Boone Dam	7,603,836	1,273,416	6,330,420
Fort Loudoun extension and canal	241,030	58,408	182,622
Other additions	<u>363,274</u>	<u>59,676</u>	<u>303,598</u>
Total multiple-use facilities	<u>8,208,140</u>	<u>1,391,500</u>	<u>6,816,640</u>
Miscellaneous navigation facilities	<u>111,421</u>	<u>-</u>	<u>111,421</u>
Chemical plant	<u>2,936,766</u>	<u>-</u>	<u>2,936,766</u>
General plant:			
General construction equipment and materials	1,070,330	-	1,070,330
Other additions to general plant	<u>177,879</u>	<u>-</u>	<u>177,879</u>
Total general plant	<u>1,248,209</u>	<u>-</u>	<u>1,248,209</u>
Total construction in progress	<u>\$125,583,846</u>	<u>\$5,446,873</u>	<u>\$120,136,973</u>
<u>INVESTIGATIONS FOR FUTURE PROJECTS:</u>			
Navigation facilities	\$ 35,966	\$ -	\$ 35,966
Flood control facilities	237,446	4,806	232,640
Power facilities	111,054	3,656	107,398
Multiple-use facilities	<u>14,424</u>	<u>-</u>	<u>14,424</u>
Total investigations for future projects	<u>\$ 398,890</u>	<u>\$ 8,462</u>	<u>\$ 390,428</u>

Note: Includes land rights, relocations, and removals.

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF CHANGES IN FIXED ASSETS
FOR THE YEAR ENDED JUNE 30, 1951

	Balance June 30, 1950 (note 1)	Additions	Retirements (note 2)	Transfers	Depreciation adjustments (note 3)	Acquisition adjustments amortization	Net change in allocation of multiple-use facilities (note 4)	Balance June 30, 1951 (note 1)
POWER:								
Production plant:								
Multiple-use hydro:								
Direct	\$165,029,554	\$ 5,646,883	\$ 31,782*	\$ 217,767*	\$ 2,678	\$ -	\$ -	\$ 170,429,566
Allocations	<u>152,270,185</u>	-	-	-	-	-	<u>12,270,858</u>	<u>164,541,043</u>
Total	317,299,739	5,646,883	31,782*	217,767*	2,678	-	12,270,858	334,970,609
Single-use hydro	46,373,315	2,404,728	126,847*	65,903	1,272	-	-	48,718,371
Steam	<u>28,987,431</u>	<u>51,190</u>	<u>18,861*</u>	<u>4,228,510</u>	<u>4,382</u>	-	-	<u>33,252,652</u>
Total	392,660,485	8,102,801	177,490*	4,076,646	8,332	-	12,270,858	416,941,632
Transmission	151,939,019	20,797,521	5,853,907*	1,478,456*	27,559	-	-	165,431,736
Distribution	208,540	8,772	401*	2,330	198	-	-	219,439
General	7,093,459	802,609	194,411*	605*	17,583	-	-	7,718,635
Plant hold for future use	948,465	-	489,126*	59,252*	-	-	-	400,087
Other structures	430,574	-	22,591*	716,417	-	-	-	1,124,400
Unclassified electric plant purchased	1,594,198	55,882*	-	4,537,286*	2,998,970	-	-	-
Electric plant sold	-	-	821,235*	821,235	-	-	-	-
Contributions in aid of construction	623,562*	101,303	75,903	446,356	-	-	-	-
Unamortized acquisition adjustments	<u>574,321</u>	-	-	-	-	200,000*	-	<u>374,321</u>
Total power	554,825,499	29,757,124	7,483,258*	12,615*	3,052,642	200,000*	12,270,858	592,210,250
NAVIGATION:								
Direct	45,223,021	475,122	5,134*	-	-	-	-	45,693,009
Allocations	<u>109,032,971</u>	-	-	-	-	-	<u>250</u>	<u>109,033,221</u>
Total navigation	154,255,992	475,122	5,134*	-	-	-	250	154,726,230
FLOOD CONTROL:								
Direct	50,307,000	4,950,000	-	-	-	-	-	55,257,000
Allocations	<u>114,672,608</u>	-	-	-	-	-	<u>8,237,569</u>	<u>122,910,177</u>
Total flood control	164,979,608	4,950,000	-	-	-	-	8,237,569	178,167,177
MULTIPLE-USE ALLOCATED	-	21,361,579	819,461*	33,929*	488	-	20,508,677*	-
Total	874,061,099	56,543,825	8,307,853*	46,544*	3,053,130	200,000*	-	925,103,657
CHEMICAL PLANT	31,029,719	2,833,624	2,139,549*	19,754	35,031	-	-	31,778,579
GENERAL PLANT	15,171,191	2,759,368	517,713*	26,790	1,274	-	-	17,440,910
CONSTRUCTION IN PROGRESS	60,757,664	64,642,055	-	184,127	-	-	-	125,583,846
INVESTIGATIONS FOR FUTURE PROJECTS	416,066	166,951	-	184,127*	-	-	-	398,890
Total	<u>\$981,435,739</u>	<u>\$126,945,823</u>	<u>\$10,965,115*</u>	<u>\$ -</u>	<u>\$3,089,435</u>	<u>\$200,000*</u>	<u>\$ -</u>	<u>\$1,100,305,882</u>

*Deduction

(See notes on following page.)

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF CHANGES IN FIXED ASSETS (continued)
FOR THE YEAR ENDED JUNE 30, 1951

Notes:

1. The cost of multiple-use facilities is not segregated as to purposes in the books of account.
2. Reconciliation of retirements with original cost of retirements charged to accumulated depreciation:

Retirements, per this schedule		\$10,965,115
Retirements included in open retirement work orders:		
June 30, 1950	\$4,888,415	
June 30, 1951	<u>6,719,065</u>	<u>1,830,650</u>
Retirements per depreciation schedule (schedule 7)		<u>\$ 9,134,465</u>

3. Depreciation adjustments consist of:

Property recorded in fixed asset accounts on which the excess of original cost over purchase cost was recorded as accumulated depreciation:

	<u>Original cost</u>	<u>Purchase cost</u>	
Steam plant acquired from Memphis Generating Company	\$4,529,220	\$1,536,267	\$2,992,953
Substation acquired from Pennyrile Rural Electric Cooperative Corporation	<u>8,067</u>	<u>2,050</u>	<u>6,017</u>
			2,998,970
Reinstatement of accumulated depreciation on plant retired and subsequently re-used and charged to fixed assets at salvage value			<u>90,465</u>
			<u>\$3,089,435</u>

4. Represents the net change in allocation of balances at June 30, 1951, of multiple-use facilities to power facilities at 41.5 percent, navigation facilities at 27.5 percent, and flood control facilities at 31 percent. The allocation percentages at June 30, 1950, were 40.5 percent, 29 percent, and 30.5 percent, respectively.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

REPORT OF THE COMMITTEE ON THE
PROGRESS OF CHEMISTRY IN
THE UNITED STATES OF AMERICA
FOR THE YEAR 1954

CHICAGO, ILLINOIS
1955

Published by the
UNIVERSITY OF CHICAGO PRESS
54 EAST LAUREL STREET
CHICAGO, ILLINOIS 60607

Copyright © 1955 by the University of Chicago
All rights reserved. No part of this publication
may be reproduced, stored in a retrieval system,
or transmitted, in any form or by any means,
electronic, mechanical, photocopying, recording,
or by any information storage and retrieval system,
without permission in writing from the University of Chicago Press.

TENNESSEE VALLEY AUTHORITY

SUMMARY OF CHANGES IN ACCUMULATED DEPRECIATION
FOR THE YEAR ENDED JUNE 30, 1951

	Balance June 30, 1950			Provision for depreciation	Original cost	Retirements			Transfers	Depreciation adjustments (note 3)	Net change in allocation of multiple-use facilities (note 4)	Balance June 30, 1951		
	Per statement	Retirements in progress (note 1)	Per books (note 2)			Salvage	Cost of removal	Net charge				Per books (note 2)	Retirements in progress (note 1)	Per statement
POWER:														
Production plant:														
Multiple-use hydro:														
Direct Allocations	\$ 28,855,097	\$ 157,649	\$ 29,012,746	\$ 3,475,503	\$ 91,187	\$ 10,259	\$ 23,894	\$ 104,822	\$ 61,263*	\$ 2,678	\$ -	\$ 32,324,842	\$ 247,696	\$ 32,077,146
	<u>10,019,626</u>	<u>63,803</u>	<u>10,083,429</u>	-	-	-	-	-	-	-	<u>1,229,308</u>	<u>11,312,737</u>	<u>45,705</u>	<u>11,267,032</u>
Total	38,874,723	221,452	39,096,175	3,475,503	91,187	10,259	23,894	104,822	61,263*	2,678	1,229,308	43,637,579	293,401	43,344,178
Single-use hydro Steam	7,980,349	265,255	8,245,604	642,501	149,250	8,694	48,961	189,517	85,786	1,272	-	8,785,646	197,123	8,588,523
	<u>11,497,252</u>	<u>91,174</u>	<u>11,588,426</u>	<u>932,927</u>	<u>14,802</u>	<u>5,214</u>	<u>731</u>	<u>10,319</u>	<u>21,989</u>	<u>2,893,746</u>	-	<u>15,426,769</u>	<u>97,159</u>	<u>15,329,610</u>
Total	58,352,324	577,881	58,930,205	5,050,931	255,239	24,167	73,586	304,658	46,512	2,897,696	1,229,308	67,849,994	587,683	67,262,311
Transmission	24,905,623	1,686,096	26,591,719	4,943,310	4,606,765	2,872,576	399,963	2,134,152	659,246*	131,334	-	28,872,965	2,381,374	26,491,591
Distribution	101,046	-	101,046	4,779	401	224	92	269	814	198	-	106,568	3,705	102,863
Plant held for future use	-	-	-	-	-	-	-	-	331,911	-	-	331,911	-	331,911
General	2,088,690	85,617	2,174,307	406,221	158,687	67,531	18,418	109,574	3,439	18,085	-	2,492,478	107,700	2,384,778
Other structures	360,404	540	360,944	-	487,650	472,399	340	15,591	285,626	-	-	630,979	1,735	629,244
Unclassified electric plant purchased	9,330	-	9,330	-	-	-	-	-	9,330*	-	-	-	-	-
Total power	<u>85,817,417</u>	<u>2,350,134</u>	<u>88,167,551</u>	<u>10,405,241</u>	<u>5,508,742</u>	<u>3,436,897</u>	<u>492,399</u>	<u>2,564,244</u>	<u>274*</u>	<u>3,047,313</u>	<u>1,229,308</u>	<u>100,284,895</u>	<u>3,082,197</u>	<u>97,202,698</u>
NAVIGATION:														
Direct Allocations	5,480,832	-	5,480,832	562,900	5,134	1,000	672	4,806	-	-	-	6,038,926	-	6,038,926
	<u>7,174,547</u>	<u>45,685</u>	<u>7,220,232</u>	-	-	-	-	-	-	-	<u>276,160</u>	<u>7,496,392</u>	<u>30,286</u>	<u>7,466,106</u>
Total navigation	12,655,379	45,685	12,701,064	562,900	5,134	1,000	672	4,806	-	-	276,160	13,535,318	30,286	13,505,032
FLOOD CONTROL:														
Direct Allocations	2,001,108	-	2,001,108	293,628	-	-	-	-	-	-	-	2,294,736	1	2,294,735
	<u>7,545,644</u>	<u>48,049</u>	<u>7,593,693</u>	-	-	-	-	-	-	-	<u>856,785</u>	<u>8,450,478</u>	<u>34,140</u>	<u>8,416,338</u>
Total flood control	9,546,752	48,049	9,594,801	293,628	-	-	-	-	-	-	856,785	10,745,214	34,141	10,711,073
MULTIPLE-USE ALLOCATED	-	-	-	2,637,727	966,747	706,548	12,186	272,385	3,577*	488	2,362,253*	-	-	-
Total	108,019,548	2,443,868	110,463,416	13,899,496	6,480,623	4,144,445	505,257	2,841,435	3,851*	3,047,801	-	124,565,427	3,146,624	121,418,803
CHEMICAL PLANT	12,675,017	112*	12,674,905	1,308,826	2,139,549	18,304	46,771	2,168,016	12,629	35,031	-	11,863,375	19,063	11,844,312
GENERAL PLANT	5,997,800	55,658*	5,942,142	926,983	514,293	164,652	5,681	355,322	8,778*	6,603	-	6,511,628	33,552*	6,545,180
Total	<u>\$126,692,365</u>	<u>\$2,388,098</u>	<u>\$129,080,463</u>	<u>\$16,135,305</u>	<u>\$9,134,465</u>	<u>\$4,327,401</u>	<u>\$557,709</u>	<u>\$5,364,773</u>	<u>\$ -</u>	<u>\$3,089,435</u>	<u>\$ -</u>	<u>\$142,940,430</u>	<u>\$3,132,135</u>	<u>\$139,808,295</u>

*Deduction

Notes:

1. Retirements in progress consist of the following:

	Year ended June 30	
	1950	1951
Original cost of plant retired	\$4,888,415	\$6,719,065
Salvage, less cost of removal	<u>2,500,317</u>	<u>3,586,930</u>
Balance, as above	<u>\$2,388,098</u>	<u>\$3,132,135</u>

2. The accumulated depreciation on multiple-use facilities is not segregated as to purposes in the books of account.

3. Depreciation adjustments. (See note 3, schedule 6.)

4. Represents the net change in allocation of balances at June 30, 1951, of multiple-use facilities to power facilities at 41.5%, navigation facilities at 27.5%, and flood control facilities at 31%; and 40.5%, 29%, and 30.5%, respectively, at June 30, 1950.

TENNESSEE VALLEY AUTHORITY

SUMMARY OF POWER OPERATING EXPENSE

FOR THE YEAR ENDED JUNE 30, 1951

	<u>Total</u>	<u>Provision for depreciation and amortization</u>	<u>Total before depreciation and amortization (exhibit 2)</u>	<u>Operation</u>	<u>Maintenance</u>	<u>Other</u>
Production:						
Generation (schedule 9):						
Hydraulic:						
Authority-owned plants:						
Multiple-use dams, including common expense of \$2,380,549	\$ 8,422,213	\$ 4,555,150	\$ 3,867,063	\$ 3,215,505	\$ 651,558	\$ -
Single-use dams	<u>1,377,737</u>	<u>642,501</u>	<u>735,236</u>	<u>370,295</u>	<u>350,853</u>	<u>14,088</u>
	9,799,950	5,197,651	4,602,299	3,585,800	1,002,411	14,088
Corps of Engineers plants (see note to schedule 9)	<u>1,561,193</u>	-	<u>1,561,193</u>	-	-	<u>1,561,193</u>
Total hydraulic	11,361,143	5,197,651	6,163,492	3,585,800	1,002,411	1,575,281
Steam plants	10,447,636	932,927	9,514,709	9,074,165	958,317	517,773*
General production expense	<u>473,318</u>	-	<u>473,318</u>	-	-	<u>473,318</u>
Total generation expense	22,282,097	6,130,578	16,151,519	12,659,965	1,960,728	1,530,826
Purchased power	2,716,343	-	2,716,343	-	-	2,716,343
Interchange power received	2,267,749	-	2,267,749	-	-	2,267,749
Interchange power delivered	<u>568,138*</u>	-	<u>568,138*</u>	-	-	<u>568,138*</u>
Total production expense	26,698,051	6,130,578	20,567,473	12,659,965	1,960,728	5,946,780
Transmission (schedule 11)	9,973,913	4,943,310	5,030,603	2,866,889	1,868,663	295,051
Distribution (schedule 11)	23,632	4,779	18,853	10,945	7,198	710
Customers' accounting and collecting (schedule 11)	71,323	-	71,323	71,323	-	-
Sales promotion (schedule 11)	313,731	-	313,731	313,731	-	-
Payments in lieu of taxes	2,444,796	-	2,444,796	-	-	2,444,796
Administrative and general expenses (schedule 11):						
Direct	3,705,533	406,221	3,299,312	2,795,166	494,050	10,096
Common	<u>107,691</u>	-	<u>107,691</u>	<u>107,691</u>	-	-
Other expense	74,115	-	74,115	-	-	74,115
Amortization of electric plant acquisition adjustments	<u>200,000</u>	<u>200,000</u>	-	-	-	-
Total operating expense	<u>\$43,612,785</u>	<u>\$11,684,888</u>	<u>\$31,927,897</u>	<u>\$18,825,710</u>	<u>\$4,330,639</u>	<u>\$8,771,548</u>

*Deduction

92557 O - 52

TENNESSEE VALLEY AUTHORITY

SUMMARY OF POWER GENERATION EXPENSE

FOR THE YEAR ENDED JUNE 30, 1951

OPERATION:	Total	Total	Hydraulic		Corps of Engineers plants (see note)	Steam plants	General production expense
			Authority-owned plants Multiple-use dams	Single-use dams			
<u>Direct:</u>							
Supervision and engineering	\$ 502,577	\$ 261,946	\$ 215,226	\$ 46,720	\$ -	\$ 240,631	\$ -
Boiler labor	579,855	-	-	-	-	579,855	-
Hydraulic labor	22,513	22,513	5,228	17,285	-	-	-
Prime mover and generator labor	1,082,099	777,716	708,666	69,050	-	304,383	-
Electric labor	1,008,468	826,753	673,910	152,843	-	181,715	-
Miscellaneous station labor	497,551	283,047	241,463	41,584	-	214,504	-
Fuel	7,381,986	-	-	-	-	7,381,986	-
Water	39,718	-	-	-	-	39,718	-
Lubricants	34,734	24,419	21,197	3,222	-	10,315	-
Station supplies	73,739	38,864	35,094	3,770	-	34,875	-
Station expenses	215,305	129,122	93,301	35,821	-	86,183	-
Total direct	11,438,545	2,364,380	1,994,085	370,295	-	9,074,165	-
Common (schedule 12)	1,221,420	1,221,420	1,221,420	-	-	-	-
Total operation	12,659,965	3,585,800	3,215,505	370,295	-	9,074,165	-
<u>MAINTENANCE:</u>							
<u>Direct:</u>							
Supervision and engineering	137,608	85,456	68,758	16,698	-	52,152	-
Structures and improvements	155,925	102,046	80,962	21,084	-	53,879	-
Coal storage, handling, and weighing equipment	163,634	-	-	-	-	163,634	-
Furnaces and boilers	346,765	-	-	-	-	346,765	-
Boiler apparatus	155,762	-	-	-	-	155,762	-
Steam piping and accessories	37,657	-	-	-	-	37,657	-
Reservoirs, dams, and waterways	124,121	124,121	14,905	109,216	-	-	-
Prime movers and generators	517,705	419,759	256,267	163,492	-	97,946	-
Accessory electric equipment	136,184	118,525	97,545	20,980	-	17,659	-
Miscellaneous power plant equipment	95,495	62,632	53,639	8,993	-	32,863	-
Roads, railroads, and bridges	10,390	10,390	-	10,390	-	-	-
Total direct	1,881,246	922,929	572,076	350,853	-	958,317	-
Common (schedule 12)	79,482	79,482	79,482	-	-	-	-
Total maintenance	1,960,728	1,002,411	651,558	350,853	-	958,317	-
<u>OTHER</u>	1,530,826	1,575,281	-	14,088	1,561,193	517,773*	473,318
Total before depreciation	16,151,519	6,163,492	3,867,063	735,236	1,561,193	9,514,709	473,318
<u>PROVISION FOR DEPRECIATION:</u>							
Direct	5,050,931	4,118,004	3,475,503	642,501	-	932,927	-
Common (schedule 12)	1,079,647	1,079,647	1,079,647	-	-	-	-
Total provision for depreciation	6,130,578	5,197,651	4,555,150	642,501	-	932,927	-
Total generation expense	\$22,282,097	\$11,361,143	\$8,422,213	\$1,377,737	\$1,561,193	\$10,447,636	\$473,318

*Deduction

Note: Under an agreement with the Secretary of the Interior dated December 18, 1948, TVA has agreed to purchase the entire output of the Dale Hollow and Center Hill plants on the Cumberland River. In accordance with that agreement and a memorandum of understanding with the Corps of Engineers, U.S. Army, dated December 9, 1948, those projects are operated for optimum production of power in conjunction with TVA's power system, subject to the flood control and other operating requirements of the Army.

TENNESSEE VALLEY AUTHORITY

POWER PRODUCTION AND EXPENSE, BY PLANTS

FOR THE YEAR ENDED JUNE 30, 1951

Generation:	Mkwh generated less station use		Production expense including depreciation		Installed capacity at June 30, 1951 (kilowatts)	Ratio of average gross generation to installed capacity (percent)
	Percent of system input	Amount	Amount	Per kwh (mills)		
Authority-owned plants:						
Hydro:						
Multiple-use dams:						
Kentucky	6.30	1,262,262	\$ 543,695	.431	160,000	90.32
Pickwick	6.26	1,254,587	444,711	.354	144,000	99.83
Wilson	13.13	2,631,331	1,009,192	.383	436,000	69.24
Wheeler	6.89	1,380,450	674,517	.489	259,200	61.68
Guntersville	3.63	726,380	311,143	.428	72,900	114.19
Hales Bar	1.71	342,370	285,107	.833	51,100	77.69
Chickamauga	3.82	764,701	327,651	.428	81,000	108.22
Watts Bar	4.94	990,756	468,350	.473	150,000	76.21
Fort Loudoun	2.95	590,058	410,231	.695	128,000	53.99
Norris	2.56	513,499	240,258	.468	100,800	59.54
Hiwassee	1.27	253,959	144,780	.570	57,600	52.08
Cherokee	1.52	304,864	245,856	.806	60,000	59.22
Fontana	3.89	778,535	323,476	.415	135,000	66.85
South Holston (note 1)	.03	5,876	62,007	10.553	35,000	6.82
Watauga	.73	146,480	249,905	1.706	50,000	35.22
Douglas	1.86	373,287	300,785	.806	86,000	50.76
Total direct	61.49	12,319,395	6,041,664	.490	2,006,600	71.65
Common (schedule 12), exclusive of administrative and general expenses of \$107,691	-	-	2,380,549	.193	-	-
Total multiple-use dams	61.49	12,319,395	8,422,213	.684	2,006,600	71.65
Single-use dams:						
Blue Ridge	.16	32,070	95,679	2.983	20,000	20.74
Ocoee No. 1	.31	61,189	119,414	1.952	18,000	42.10
Ocoee No. 2 (note 2)	.47	94,279	220,021	2.334	19,900	77.70
Ocoee No. 3	.90	180,706	132,762	.735	27,000	76.65
Great Falls	.83	166,040	277,019	1.668	31,860	59.96
Columbia	-	641	3,399	5.302	800	9.25
Apalachia	2.34	468,759	394,519	.842	75,000	73.51
Wilbur (note 3)	.13	26,004	70,407	2.708	10,700	29.48
Nolichucky	.26	51,983	64,517	1.241	10,640	58.25
Total single-use dams	5.40	1,081,671	1,377,737	1.274	213,900	61.08
Total hydro generation	66.89	13,401,066	9,799,950	.731	2,220,500	70.65
Steam plants:						
Wilson	.61	121,873	1,186,533	9.736	64,000	23.15
Hales Bar	1.04	208,648	1,242,970	5.957	40,000	62.37
Memphis (note 4)	1.17	235,971	940,726	3.987	20,000	140.77
Watts Bar	9.21	1,845,701	6,238,961	3.380	240,000	91.55
Nashville	.25	49,821	680,350	13.656	48,000	14.47
Bowling Green	-	-	54,781	-	3,750	-
Watauga	-	303*	37,044	-	8,500	-
Parksville	-	-	36,325	-	13,000	-
Two small plants	-	512*	29,946	-	6,800	-
Total steam plants	12.28	2,461,199	10,447,636	4.245	444,050	66.34
General production expense	-	-	473,318	-	-	-
Total generation in Authority-owned plants	79.17	15,862,265	20,720,904	1.306	2,664,550	69.92

*Deduction

POWER PRODUCTION AND EXPENSE, BY PLANTS (continued)

FOR THE YEAR ENDED JUNE 30, 1951

	Mkwh generated less station use		Production expense including depreciation		Installed capacity at June 30, 1951 (kilowatts)	Ratio of average gross generation to installed capacity (percent)
	Percent of system input	Amount	Amount	Per kwh (mills)		
Corps of Engineers plants--hydro (note 5)						
Dale Hollow	.82	163,491			36,000	53.47
Center Hill	1.57	314,445			135,000	65.99
Total Corps of Engineers plants	2.39	477,936	\$ 1,561,193	3.267	171,000	61.04
Aluminum Company dams (note 6):						
Calderwood	2.88	577,157			121,500	54.23
Cheoah	2.50	500,248			106,000	53.87
Santeetlah	1.01	202,562			45,000	51.39
Nantahala	1.31	262,273			43,200	69.31
Thorpe (formerly Glenville)	.52	103,379			21,600	54.64
Five small dams	.21	43,320			8,260	59.87
Total Aluminum Company dams	8.43	1,688,939			345,560	55.79
Total generation under full or partial direction of the Authority	89.99	18,029,140	22,282,097	1.236	3,181,110	68.07
Purchased power	3.62	724,576	2,716,343	3.749		
Interchange power received:						
Billed	2.97	595,347	2,267,749	3.809		
Exchanged	3.42	686,121	-	-		
Total system input	100.00	20,035,184	27,266,189	1.361		
Delivered under Fontana agreement	9.33*	1,868,851*				
Interchange power delivered:						
Billed	.42*	84,620*	568,138*	6.714		
Exchanged	3.20*	642,098*	-	-		
Net energy supply	87.05	17,439,615	26,698,051	1.531		
Shop and internal uses	-	860*	-	-		
Transmission and transformation losses	4.58*	916,718*	-	-		
Total Mkwh sales of electric energy (exhibit 2), and related total production expense (schedule 8)	82.47	16,522,037	\$26,698,051	1.616		

*Deduction

Notes:

- The 35,000 kw generating unit was placed in operation on February 13, 1951.
- One additional 10,500 kw generating unit was placed in operation on January 25, 1951.
- One additional 7,000 kw generating unit was placed in operation on July 19, 1950.
- On May 31, 1950, TVA purchased the 50,000 kw Memphis Steam Plant subject to a contract reserving 60% of the capacity to Arkansas Power & Light Company through May 31, 1958. The company paid TVA in advance \$1,145,098 for the continuation of that right and pays monthly for energy taken at cost. The agreement provides that during such periods as the company does not require full use of the reserved capacity any unused portion is available to TVA.
- Under an agreement with the Secretary of the Interior dated December 18, 1948, TVA has agreed to purchase the entire output of the Dale Hollow and Center Hill plants on the Cumberland River. In accordance with that agreement and a memorandum of understanding with the Corps of Engineers, U.S. Army, dated December 9, 1948, those projects are operated for optimum production of power in conjunction with TVA's power system, subject to the flood control and other operating requirements of the Army. Three 45,000 kw generating units were placed in operation during the year at Center Hill; the first unit on December 11, 1950, the second unit on January 17, 1951, and the third unit on April 11, 1951.
- Under the Fontana Agreement of August 14, 1941, operation of the hydro plants of the Aluminum Company of America having an installed capacity of 345,560 kw is coordinated with the operation of TVA's power plants under an arrangement whereby the storage and release of water from the company's plants is carried out by the company under TVA's direction.

T E N N E S S E E V A L L E Y A U T H O R I T Y

TRANSMISSION, ADMINISTRATIVE AND GENERAL, AND OTHER POWER EXPENSES

FOR THE YEAR ENDED JUNE 30, 1951

TRANSMISSION EXPENSE:

Operation:

Supervision and engineering	\$ 512,399
Load dispatching labor and expenses	259,370
Station labor	939,705
Station supplies and expenses	305,944
Overhead lines	849,471

Total operation 2,866,889

Maintenance:

Supervision and engineering	348,680
Structures and improvements	150,423
Station equipment	967,604
Towers and fixtures	17,737
Poles and fixtures	195,040
Conductors and devices	177,868
Roads and trails	11,311

Total maintenance 1,868,663

Miscellaneous:

Rents	286,735
Joint expenses	8,316

Total miscellaneous 295,051

Total before depreciation 5,030,603

Provision for depreciation 4,943,310

Total transmission expense \$9,973,913

DISTRIBUTION EXPENSE:

Operation:

Supervision and engineering	\$ 1,313
Lines	8,768
Services on customers' premises	864

Total operation 10,945

Maintenance:

Supervision and engineering	1,308
Overhead systems	2,250
Line transformers and devices	2,041
Services	1,310
Meters	289

Total maintenance 7,198

Miscellaneous--rents 710

Total before depreciation 18,853

Provision for depreciation 4,779

Total distribution expense \$ 23,632

T E N N E S S E E V A L L E Y A U T H O R I T Y

TRANSMISSION, ADMINISTRATIVE AND GENERAL, AND OTHER POWER EXPENSES
(continued)
FOR THE YEAR ENDED JUNE 30, 1951

CUSTOMERS' ACCOUNTING AND COLLECTING EXPENSES:

Customers' contracts, orders, meter reading, and collecting	\$ 48,219
Customers' billing and accounting	<u>23,104</u>
Total customers' accounting and collect- ing expenses	<u>\$ 71,323</u>

SALES PROMOTION EXPENSE:

Supervision	\$ 96,852
Salaries	216,960
Demonstration	68,807
Advertising	69,541
Miscellaneous sales expense	1,456
Rents	28,429
Merchandising, jobbing, and contract work	5,925
Reimbursement from power distributors	<u>174,239*</u>
Total sales promotion expense	<u>\$ 313,731</u>

ADMINISTRATIVE AND GENERAL EXPENSES:

Divisions of power, including accounting office:	
Salaries of general officers and executives	\$ 126,172
Other general office salaries	854,111
Expenses of general officers	21,705
Expenses of general office employees	48,391
General office supplies and expenses	134,948
Injuries and damages	20,257
Contributions to employees' retirement system	898,788
Miscellaneous general expenses	49,011
Maintenance of structures and improvements	11,207
Maintenance of communication equipment	423,703
Maintenance of miscellaneous property	59,140
Rents (including communication rents of \$10,096)	111,492
Electricity used by shops and laboratories	<u>6,622*</u>
Total for divisions of power	2,752,303

Less:

Portion transferred to construction	\$527,208	
Portion recovered through services billed to others	<u>31,113</u>	<u>558,321</u>
Balance		2,193,982

Allocations from other divisions:

TVA general offices (schedule 14)	1,026,613
Other divisions	<u>78,717</u>

Total direct administrative and general
expenses before depreciation 3,299,312

Provision for depreciation 406,221

Total direct administrative and general
expenses \$3,705,533

Allocation of administrative and general expenses
charged to common operations (schedule 12) \$ 107,691

*Deduction

T E N N E S S E E V A L L E Y A U T H O R I T Y

OPERATION OF MULTIPLE-USE FACILITIES
COMMON TO POWER, NAVIGATION, AND FLOOD CONTROL
FOR THE YEAR ENDED JUNE 30, 1951

	<u>Total</u>	<u>Distributed to</u>		
		<u>Power operations</u>	<u>Navigation operations</u>	<u>Flood control operations</u>
<u>OPERATION</u> , exclusive of depreciation included below:				
Water dispatching	\$ 498,238			
Malaria control	649,630			
Plant protection and services to visitors	751,311			
Upkeep of roads and grounds	404,522			
Reservoir lands	315,017			
Backwater protection facilities	27,685			
Engineering investigations and tests	335,250			
System improvement studies	54,243			
Other operating expense	<u>17,654</u>			
	3,053,550	\$1,221,420	\$ 916,065	\$ 916,065
<u>ADMINISTRATIVE AND GENERAL EXPENSES</u> (schedule 14)	<u>269,227</u>	<u>107,691</u>	<u>80,768</u>	<u>80,768</u>
Total operation (note 1)	3,322,777	1,329,111	996,833	996,833
<u>MAINTENANCE</u> (note 2)	193,715	79,482	54,636	59,597
<u>PROVISION FOR DEPRECIATION</u> (note 2)	<u>2,637,727</u>	<u>1,079,647</u>	<u>747,890</u>	<u>810,190</u>
Total	<u>\$6,154,219</u>	<u>\$2,488,240</u>	<u>\$1,799,359</u>	<u>\$1,866,620</u>

Notes:

1. Distributed 40 percent to power, 30 percent to navigation, and 30 percent to flood control.
2. Distributed 40.5 percent to power, 29 percent to navigation, and 30.5 percent to flood control from July through January; and 41.5 percent, 27.5 percent, and 31 percent, respectively, for the remainder of the year.

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF DEVELOPMENT ACTIVITIES EXPENSE
FOR THE YEAR ENDED JUNE 30, 1951

AGRICULTURAL RESOURCE DEVELOPMENT:

Fertilizer shipped for tests and demonstrations:	
Superphosphate (1,728 P ₂ O ₅ tons)	\$ 159,976
Calcium metaphosphate (4,054 P ₂ O ₅ tons)	381,418
Fused tricalcium phosphate (5,103 P ₂ O ₅ tons)	667,278
Ammonium nitrate (129 dry tons)	5,837
Decrease in test-demonstration fertilizer inventory	<u>82,152</u>
Total	<u>1,296,661</u>
Income from test-demonstration fertilizer:	
Superphosphate	70,705*
Calcium metaphosphate	79,981*
Fused tricalcium phosphate	108,409*
Recoveries from carriers for test-demonstration fertilizer lost in transit	<u>573*</u>
Total	<u>259,668*</u>
Other material used in tests and demonstrations:	
Ammonia	433
Fused tricalcium phosphate	13
Slag	1,731
Dicalcium nitraphosphate	690
Other phosphates	<u>165</u>
Total	<u>3,032</u>
Test-demonstration planning and supervision:	
Test-demonstration branch:	
Contractual	316,825
Direct	90,508
Chestuee Watershed	11,139
Distributor relations branch:	
Contractual	5,140
Direct	62,667
Study of spread of better agricultural practices from test-demonstration farms	22,500
Test-demonstration fertilizer distribution expense	18,628
Aerial photography for agricultural surveys	3,127
Other general expense distributed	<u>137,775</u>
Total	<u>668,309</u>
Preliminary soil and fertilizer investigations:	
Contractual	122,393
Direct	31,095
Other general expense distributed	<u>38,825</u>
Total	<u>192,313</u>

*Deduction

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF DEVELOPMENT ACTIVITIES EXPENSE (continued)

FOR THE YEAR ENDED JUNE 30, 1951

Farm classification and soil surveys:	
Soil survey	\$ 39,512
Farm classification and analysis studies	6,988
Farm classification studies--Chestuee	602
Other general expense distributed	<u>14,658</u>
Total	<u>61,760</u>
Development and demonstration of farm equipment:	
Agricultural engineering education and demonstrations	32,172
Agricultural engineering research and development general expense and minor projects	12,840
Fertilizer placement	6,244
Mulch seeding	6,538
Irrigation	9,130
Grain drying	10,104
Internal smut control	1,425
Mechanized hay bin	4,179
Miscellaneous revenue	3,263*
Other general expense distributed	32,351
Provision for depreciation, farm development equipment facilities	<u>680</u>
Total	<u>112,400</u>
Development of processes for agricultural products:	
Food processing general expense and minor projects	24,178
Fruit and vegetable processing studies	1,872
Meat curing studies	12,424
Food processing education, testing and demonstrations	11,909
Food processing revenue	1,347*
Other general expense distributed	25,210
Provision for depreciation, food processing facilities	<u>381</u>
Total	<u>74,627</u>
Total agricultural resource development	<u>2,149,434</u>

*Deduction

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF DEVELOPMENT ACTIVITIES EXPENSE (continued)

FOR THE YEAR ENDED JUNE 30, 1951

FOREST RESOURCE DEVELOPMENT:

Studies of forest resources and management:	
Branch administration and general	\$ 27,722
Regional forest investigations and plans	63,290
Forest utilization investigations	50,582
Forest management investigations	68,104
Miscellaneous revenue	2,553*
Other general expense distributed	37,007
Provision for depreciation, forest resource investigations facilities	<u>1,842</u>
Total	<u>245,994</u>

Assistance in forest management and reforestation:	
Branch administration and general	41,807
Forest development operation	165,782
Clinton forest nursery operation	80,637
Muscle Shoals forest nursery operation	47,168
Forest nursery distribution	29,899*
Forest nursery and miscellaneous revenue	490*
Forest fire control demonstrations--contractual	32,776
Forest development activities--Chestuee Watershed	262
Other general expense distributed	65,990
Provision for depreciation, Clinton nursery	3,249
Provision for depreciation, Muscle Shoals nursery	2,335
Provision for depreciation, forest development facilities	<u>153</u>
Total	<u>409,770</u>

Development of forest products and utilization processes:	
Laminated lumber development	1,853
Feeding tests--wood hydrolysis--contractual	1,138
Chemical expense on wood hydrolysis	31,254
Other general expense distributed	1,470
Chemical general expense distributed	16,382
Provision for depreciation--forest product development facilities	<u>446</u>
Total	<u>52,543</u>
Total forest resource development	<u>708,307</u>

MINERAL RESOURCE DEVELOPMENT:

Utilization of clays and shales for lightweight concrete aggregate	8,422
Electric furnace methods for production of fused refractories and alloys	3,664
Field surveys on valley minerals	47,064
Field surveys on valley minerals--income	4*
Cooperative electro-technical research	14,786
Mineral resources development--general	448
Chemical general expense distributed	15,821
Other general expense distributed	402
Provision for depreciation, mineral resource development equipment and general facilities	<u>2,368</u>
Total mineral resource development	<u>92,971</u>

*Deduction

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF DEVELOPMENT ACTIVITIES EXPENSE (continued)

FOR THE YEAR ENDED JUNE 30, 1951

RECREATIONAL RESOURCE DEVELOPMENT:

Operation of recreational facilities:	
Recreational resource development	\$ 35,774
Other recreational facilities operation (net):	
Eastern branch	2,053*
Fontana	16,310*
Muscle Shoals branch	4,312*
Hiwassee	957*
Knoxville branch	334
Western branch	3,850*
Guntersville-Wheeler branch	1,242
Chattanooga branch	794
Other general expense distributed	72,906
Provision for depreciation--Fontana	66,751
Provision for depreciation--Hiwassee village	2,182
Provision for depreciation--Wheeler village	10,199
Provision for depreciation--Pickwick village	10,236
Provision for depreciation, recreational facilities--general	<u>16,985</u>
Total recreational resource development	<u>191,921</u>

STREAM SANITATION AND PUBLIC HEALTH:

Stream sanitation investigations:	
Stream sanitation	60,649
Other general expense distributed	38,977
Provision for depreciation, stream sanitation equipment	<u>544</u>
Total	<u>100,170</u>
Public health studies and assistance:	
Cooperative health work	11,791
Public health studies--industrial hygiene	7,200
Other general expense distributed	<u>11,304</u>
Total	<u>30,295</u>
Total stream sanitation and public health	<u>130,465</u>

FISH AND GAME INVESTIGATIONS:

Fish and game investigations	72,261
Other general expense distributed	13,530
Provision for depreciation, fish and game investigations facilities	<u>2,012</u>
Total fish and game investigations	<u>87,803</u>

*Deduction

T E N N E S S E E V A L L E Y A U T H O R I T Y

SUMMARY OF DEVELOPMENT ACTIVITIES EXPENSE (continued)

FOR THE YEAR ENDED JUNE 30, 1951

TOPOGRAPHIC MAPPING:

Valley topographic multiplex mapping:	
Aerial photography	\$ 7,759
Control surveys	79,633
Machine manuscript preparation	19,323
Field completion	92,927
Office completion	30,774
Reproduction	60,605
Other general expense distributed	56,130
Provision for depreciation, multiplex mapping facilities	<u>765</u>
Total topographic mapping	<u>347,916</u>

SPECIAL STUDIES AND ACTIVITIES:

Transportation and industrial economic studies:	
Industrial economic studies	93,352
Industrial economic studies--revenue	2*
Transportation economic studies	10,327
Other general expense distributed	<u>30,089</u>
Total	<u>133,766</u>
Advisory assistance to state and local governments:	
Government research branch administration	14,298
Assistance in public administration and finance problems	48,828
Planning assistance to communities	27,283
Other general expense distributed	<u>25,674</u>
Total	<u>116,083</u>
Studies of resource development methods and opportunities:	
Study of community organizations in Bradley County, Tennessee	5,571
Southeastern library demonstration project	7,000
Study of major economic trends in the Tennessee Valley	4,740
Other general expense distributed	<u>3,098</u>
Total	<u>20,409</u>
Studies of relationship between the Tennessee and Cumberland Valleys:	
Studies and reports on Cumberland Valley	14,173
Other general expense distributed	<u>3,136</u>
Total	<u>17,309</u>
Total special studies and activities	<u>287,567</u>
<u>ADMINISTRATIVE AND GENERAL EXPENSES (schedule 14)</u>	<u>237,963</u>
Net expense of development activities	<u>\$4,234,347</u>

*Deduction

T E N N E S S E E V A L L E Y A U T H O R I T Y

ADMINISTRATIVE AND GENERAL EXPENSES

FOR THE YEAR ENDED JUNE 30, 1951

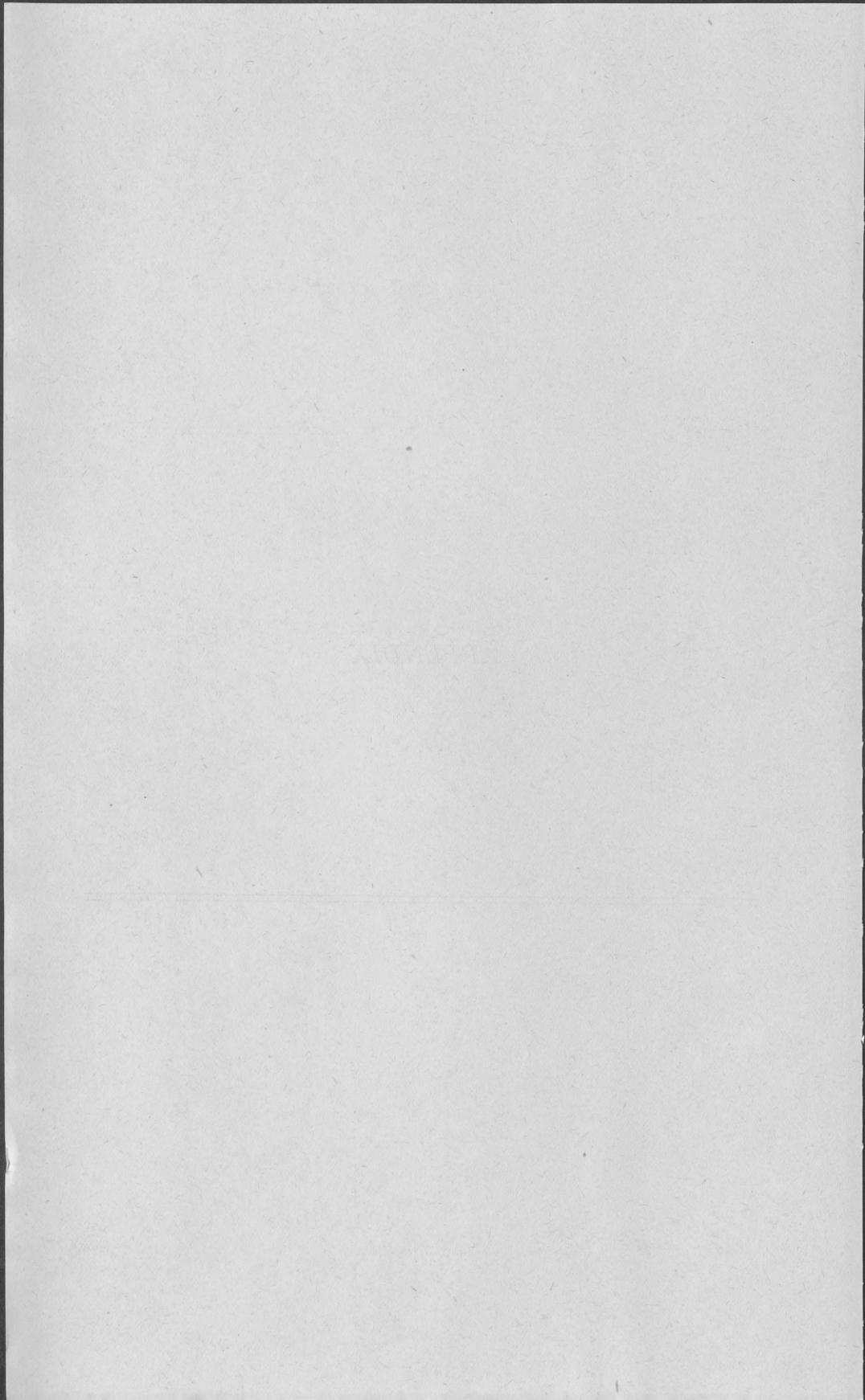
EXPENSES:

Board of directors	\$ 87,418
Office of the general manager	79,017
Budget staff	84,209
Washington staff	50,900
Information staff, including technical library service	173,084
Division of personnel	780,883
Division of finance	927,185
Division of law	232,171
Division of property and supply	1,252,636
Operation of medical and safety service units	348,889
Other administrative and general expenses	<u>129,712</u>
Total	<u>\$4,146,104</u>

Distribution--Administrative and general expenses have been distributed insofar as practicable on the basis of direction of effort, determined from studies conducted by the various divisions, and, where the activities were too general to be identified with specific projects or programs, in relation to total expenditures, subject to a maximum percentage allocation to construction based on the average allocation for the 5-year period 1946-1950. The following tabulation shows the distribution for the year.

	<u>Amount</u>	<u>Percent of total</u>
Construction	\$2,007,117	48.41
Recovered through services billed to others at cost	34,313	.83
Expense of programs:		
Power	1,026,613	24.76
Navigation	16,636	.40
Flood control	5,725	.14
Common operations:		
Power	107,691	2.60
Navigation	80,768	1.95
Flood control	80,768	1.95
Chemical:		
Chemical plant operations	513,397	12.38
Fertilizer and munitions research and development	35,113	.84
Development activities	<u>237,963</u>	<u>5.74</u>
Total	<u>\$4,146,104</u>	<u>100.00</u>

APPENDIX



RETIREMENT SYSTEM OF TENNESSEE VALLEY AUTHORITY

The TVA Retirement System was established in 1939 to execute a program of retirement, disability, and death benefits financed by joint contributions of the Authority and of its salaried employees. Administration of the system is vested in its own board of directors, and its funds are held and invested by a trustee. The Authority appoints three of the seven members of the board of directors, three are elected by the participants, and the seventh member is chosen by these six directors.

A brief summary of the more important features of the retirement plan follows.

1. Membership is comprised of all officers and employees of the Authority employed at an annual rate of pay, except (1) members of the board of directors of the Authority, (2) employees who are members of the civil service retirement system at the time of employment by the Authority, and (3) those who expressed a desire to be excluded at the inception of the plan.
2. Each member contributes a percentage of his compensation, fixed according to his age at the time his membership begins. The percentage ranges for men from 4.33 percent at age 17 to 7.97 percent at age 59, and for women from 4.86 percent at age 17 to 8.92 percent at age 59. Members may receive credit for periods of military service if they make up contributions for those periods.
3. The contributions by the Authority are voluntary and terminable at the beginning of any year. Annual amounts are contributed for normal service, expressed as a certain percentage of the payroll of all members, and determined by actuarial computation. A further percentage of the payroll of all members is paid into the fund, designed to liquidate the amount necessary to provide the benefits on account of employment service claimed by members prior to date of establishment of the plan. The total contributed by the Authority for the year ended June 30, 1951, was:

	<i>Percent of members' compensa- tion</i>	<i>Amount</i>
Normal service contributions.....	4.64	\$1,496,387
Prior service contributions.....	3.32	1,070,690
	7.96	\$2,567,077

The operation of the Retirement System is regarded as a Federal function in general and as an Authority function in particular. As authorized in section 301 (b) of the Government Corporation Control Act, the General Accounting Office has contracted for the employment of a private firm of certified public accountants to make the audit of the Retirement System. The balance sheet of the Retirement System at June 30, 1951, and the related statement of pension accumulation fund, together with an opinion by the auditors, follow.

APPENDIX

LYBRAND, ROSS BROS. & MONTGOMERY
CERTIFIED PUBLIC ACCOUNTANTS

To the Comptroller General of the United States, Washington, D. C.:

We have examined the balance sheet of the Retirement System of the Tennessee Valley Authority as of June 30, 1951 and the related statement of pension accumulation fund for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. The amount of cash and the securities held by City Bank Farmers Trust Company, as trustee, as of June 30, 1951, were substantiated by direct correspondence with such trustee.

In our opinion, the accompanying balance sheet and related statement of pension accumulation fund present fairly the financial position of the Retirement System of the Tennessee Valley Authority at June 30, 1951, and the income, expenses and other changes in the pension accumulation fund for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

(Signed) LYBRAND, ROSS BROS. & MONTGOMERY

NEW YORK, *October 1, 1951.*

APPENDIX

RETIREMENT SYSTEM OF THE TENNESSEE VALLEY AUTHORITY

BALANCE SHEET—JUNE 30, 1951

ASSETS:

INVESTMENTS held by City Bank Farmers Trust Company, trustee (at market quotations, \$29,622,883.50):			
Bonds, at cost less amortization of premiums paid:			
United States Government	\$15,477,059.60		
Utilities	7,304,757.79		
Railroads	1,651,798.44		
Industrials	957,583.32	\$25,391,199.15	
Preferred stocks, at cost:			
Industrials	3,387,567.64		
Utilities	2,287,281.74		
Railroad	141,181.00	5,816,030.38	\$31,207,229.53
CASH:			
With City Bank Farmers Trust Company, trustee	456,172.81		
Treasurer's fund	8,107.79		464,280.60
CONTRIBUTIONS RECEIVABLE from Tennessee Valley Authority			
			316,756.20
DIVIDENDS AND ACCRUED INTEREST RECEIVABLE			
			176,072.06
			<u>\$32,164,338.39</u>

LIABILITIES AND FUNDS:

ACCOUNTS PAYABLE (principally \$883,221.93 for securities purchased but not received)			\$942,101.40
ANNUITY SAVINGS FUND, comprising members' contributions and interest accrued thereon:			
Balance, June 30, 1950		10,454,092.07	
Net additions during the year ended June 30, 1951:			
Members' contributions	2,029,194.40		
Accrued interest	407,322.83		
	2,436,517.23		
Less, Refunds and transfers to annuity reserve fund	658,558.77	1,777,958.46	12,232,050.53
ANNUITY RESERVE FUND:			
Balance, June 30, 1950		442,235.49	
Net additions during the year ended June 30, 1951:			
Transfers from annuity savings fund	112,844.94		
Transfers from pension accumulation fund	18,423.79		
Accrued interest	17,905.76		
	149,174.49		
Less, Retirement and other payments	44,386.87	104,787.62	547,023.11
PENSION RESERVE FUND:			
Balance, June 30, 1950		67,674.75	
Net additions during the year ended June 30, 1951:			
Transfers from pension accumulation fund	47,068.10		
Accrued interest	3,447.22		
	50,515.32		
Less, Pension payments	6,714.28	43,801.04	111,475.79
PENSION ACCUMULATION FUND, as annexed			18,331,687.56
			<u>\$32,164,338.39</u>

APPENDIX

RETIREMENT SYSTEM OF THE TENNESSEE VALLEY AUTHORITY

STATEMENT OF PENSION ACCUMULATION FUND

For the Year Ended June 30, 1951

INCOME:			
Contributions by Tennessee Valley Authority.....			\$2,567,077.00
Investment income:			
Interest.....	\$590,440.92		
Less, Amortization of bond premiums.....	32,855.19		
	557,585.73		
Dividends.....	202,697.50	760,283.23	
Total income.....			3,327,360.23
EXPENSES:			
Salaries.....	34,216.56		
Trustee's fee and expenses.....	26,301.28		
Professional services.....	8,660.42		
Rental of office space and equipment.....	3,522.02		
Printing and office supplies.....	2,297.58		
Travel.....	1,477.26		
Telephone.....	499.75		
Other.....	617.04	77,591.91	
			3,249,768.32
PAYMENTS AND CHARGES:			
Interest on members' contributions and pension reserve fund, less \$35,189.90 forfeited on withdrawals.....	428,675.81		
Death benefits.....	76,547.42		
Retirement and disability pensions.....	22,660.00		
Transfers to pension reserve fund.....	47,068.10		
Transfers to annuity reserve fund.....	18,423.79	593,375.12	
			2,656,393.20
PROFIT ON SALE OR REDEMPTION OF INVESTMENT SECURITIES.....			42,102.06
Increase in fund, for the year ended June 30, 1951.....			2,698,495.26
BALANCE, June 30, 1950.....			15,633,192.30
BALANCE, June 30, 1951.....			<u>\$18,331,687.56</u>

○