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OAK RIDGE NATIONAL LABORATORY

QUARTERLY PROGRESS REPORT

OF

SERVICES AND ADMINISTRATION

FOR PERIOD ENDING JUNE 30, 1955

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OAK RIDGE NATIONAL LABORATORY

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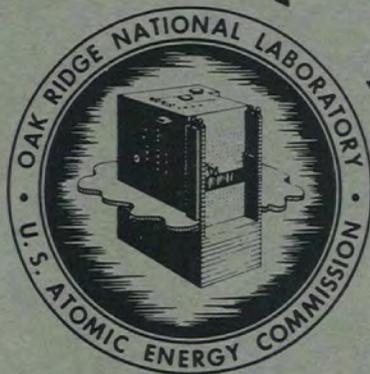


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FOR PERIOD ENDING JUNE 30, 1955



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OAK RIDGE NATIONAL LABORATORY
QUARTERLY PROGRESS REPORT
OF
SERVICES AND ADMINISTRATION
for Period Ending June 30, 1955

Compiled by W. E. Thompson

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Laboratory Director's Staff – H. Stringfield
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DATE ISSUED

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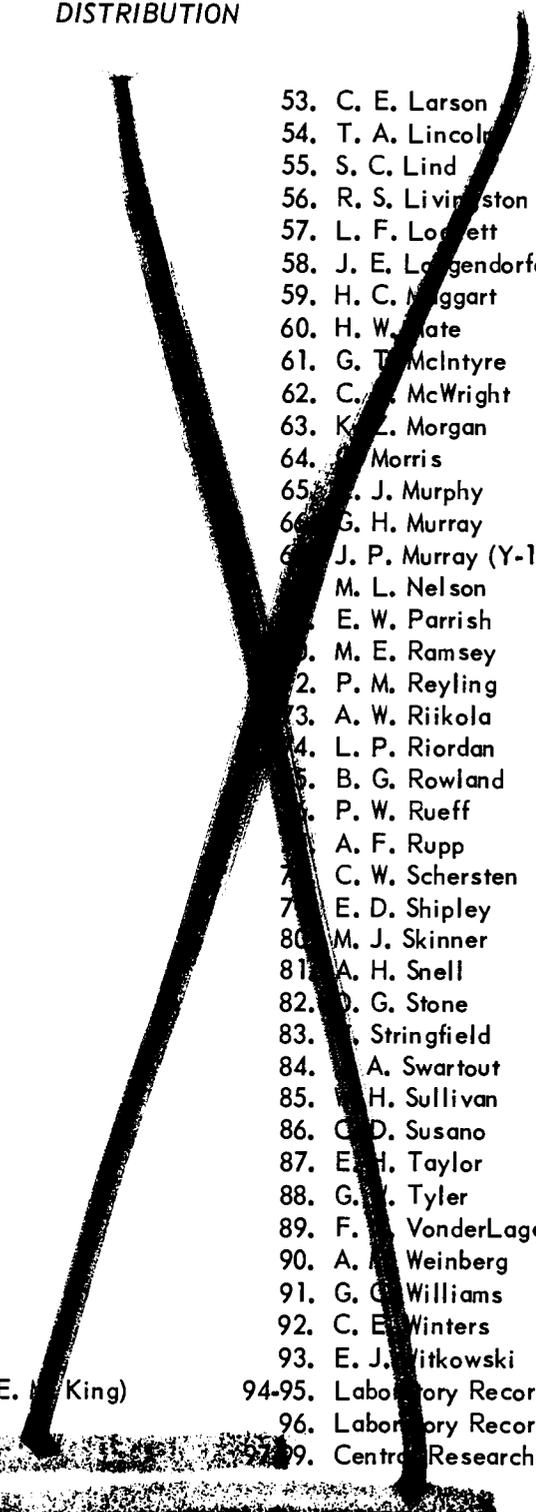
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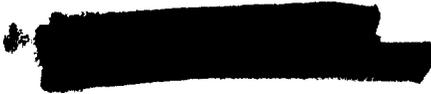
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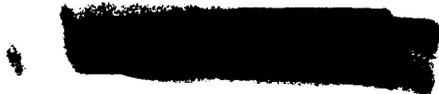
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OAK RIDGE NATIONAL LABORATORY
QUARTERLY PROGRESS REPORT
OF SERVICES AND ADMINISTRATION

SUMMARY

**1. LABORATORY ADMINISTRATIVE AND
PROGRAM SERVICES**

During the months of April, May, and June, the Laboratory completed design, construction, and test operations of a pool-type research reactor for display at the Geneva Conference. The reactor and exhibits were then crated and were flown to Geneva by the Military Air Transport Service, leaving Knoxville on June 30. ORNL personnel left for Geneva ahead of the shipments in order to be in Geneva in time to assure safe delivery and disposal of the materials when they arrived. In view of the comparatively large number of ORNL personnel expected to be in Geneva for the International Conference, arrangements were made with the British and French atomic energy organizations to provide tours for ORNL personnel through the atomic energy facilities at Saclay, France, on August 23 and Harwell, England, on August 26.

During FY 1955 the total operating cost for the Oak Ridge National Laboratory amounted to 99.75% of the funds available from the Financial Plan and from revenue. Complete cost reports for the fiscal year showed that the Laboratory experienced a 1.6% overrun in Programs 2000-6000 as a result of the crash programs in reactor development. Service divisions expended 98.4% of their total gross budget. Overhead costs during FY 1955 amounted to 98.0% of the budget.

In support of the large capital projects proposed in the Laboratory's budget submission for FY 1957, brochures were prepared and submitted to the AEC on Expansion of the Criticality Facility, the East Research Building, and the Instrument Laboratory Building addition.

A revised method of costing certain fringe benefit and supplemental labor charges will be put into effect on July 1 to provide for the direct charging of these items, which previously were

included in overhead. Coincident with the plans to change the method of costing fringe benefits, arrangements were completed to provide a new method of absentee reporting. The new method will provide a dual saving by making better use of the IBM card system already established for payroll tabulation and by eliminating most of the manual recordings required by the old system.

A new inventory cycle, retroactive to July 1, 1954, calls for portable items of equipment to be inventoried once every two years and installed items of plant and equipment to be inventoried once every ten years.

Continuing a program started earlier, eight additional time clocks have been tied into the master line system which provides for automatic adjustment and reduces clock maintenance costs. In this case additional savings are expected to be about \$1000 per year.

The group insurance dividend distributed to employees on April 15 represented a return of approximately 35.4% of the amount employees paid into the plan.

The Laboratory's revised recreation policy, which places emphasis on intra-Laboratory activities, is being well received, and it is expected that a greater number of employees will participate in company recreation activities.

During the quarter, four grievances were filed by the Atomic Trades and Labor Council and none by the International Guards Union of America. There were no arbitration cases.

2. PERSONNEL SERVICES

The services of a consultant nutritionist have been secured to provide on-the-job training in nutrition. A consultant industrial hygienist will visit the Laboratory on a regular schedule, providing expert advice on nonradiation, industrial hygiene problems.

A disabling injury on May 23 terminated an accident-free period of 2,226,900 manhours. An AEC Award of Merit Plaque was awarded to the Laboratory for notable achievement in preventing employee injuries for the year 1954.

No major fire losses occurred in the first half of 1955. During spring cleanup week, April 17-23, emphasis was placed on promoting better house-keeping conditions and preventing fires.

Authorization has been received from the AEC to remove the Biology Division facilities from the Y-12 limited area. This change will permit admittance of visitors by means of administrative control rather than by security clearance.

A fenced corridor to the Research Reactor site permits the Blount Bros. Construction Company to use uncleared construction workers on the job. A similar arrangement will be used for the construction of the Multicurie Fission Product Pilot Plant.

Laundering and decontamination of company-furnished clothing was started in a newly completed facility on May 23, 1955. The Health Physics Clothing Monitoring and Surveying section, formerly located in Building 2515, is now housed in the facility.

During the quarter the functions of the Employment Department were consolidated, and procedures for handling the work load were revised, enabling the staff to be reduced by two people. Retention schedules for personnel files are being reduced, with the goal of reducing active files by 20 to 30%. Satisfactory housing accommodations were found for the consultants, research participants, and summer visitors.

The fourth apprenticeship program was brought to completion in June.

Staff conferences were provided during the quarter on the subjects "Union Contracts" and "Wage and Salary Administration."

During the quarter the total number of permanent employees increased from 3273 to 3305.

3. ORGANIZATION AND POLICY CHANGES

Miscellaneous official bulletins and Standard Practice Procedures were issued or revised to keep employees informed of current policies.

4. CONSTRUCTION AND MAINTENANCE PROJECTS

During the quarter the Metallographic Cell located in the Solid State Building 3025, the Metal Storage Facility, the Addition to the Bulk Shielding Facility Building 3010, the Corrosion Examination Facility in the Radiochemical Laboratory Building 4501, the Clothing Decontamination and Monitoring Facility, the Multi-Kilocurie Loading Cell in the Radioisotopes Area, the Source and Fissionable Materials Storage Vault, and the Geneva Conference reactor and exhibits were completed.

Major active projects during the quarter include the Solid State Building Extension, the Homogeneous Reactor Test Building modifications, the construction of a new High-Radiation-Level Analytical Facility, the installation of automatic fire protection in existing buildings, the construction of the new Research Reactor, the dismantling of the ARE reactor and components, continued fabrication and installation work on in-pile loops, the construction of the new Multicurie Fission Product Pilot Plant, and the new Field Shop Building 7506.

Projects in the design stages include the Lead Shop, the ART Building modifications, and the new Process Waste Water Treatment Plant.

The only new project proposed during the quarter was the additional boiler for the Steam Plant.

ORNL projects in the Y-12 Plant during the quarter included the consolidation of research facilities in Building 9207, the Raw Materials Milling Facility in Building 9207, and the expansion of mouse genetics facilities in Biology Research Building 9210. In the Aircraft Reactor Engineering Building, major projects included the provision of services and utilities for three large gas-fired furnaces and the redistribution of electric power load in the building. Preliminary engineering has been completed for a shielded room to house the 48-in. cyclotron and for the installation of air conditioning in the Criticality Laboratory, Building 9213. Plans are being made for the installation of a 500-kw motor generator set to provide additional power for the expansion of calutron facilities for stable isotope separations

and two motor generator sets for the Reactor Experimental Engineering Building 9204-1 to provide a variable-frequency power source. Modifications to some of the building services in the Electronuclear Research Building 9204-3 have been performed in preparation for additional experimental work.

Engineering has been completed for the installation of a Mammalian Radiation Recovery Laboratory

in the Biology Research Building 9207 and the installation of a 15-kw, d-c power supply for experimental uses in the Reactor Experimental Engineering Building 9204-1.

The expansion of present stable isotope separation facilities by the installation of two additional calutron units is planned, and arrangements are being made for the work to be started in the near future.

1. LABORATORY ADMINISTRATIVE AND PROGRAM SERVICES

GENEVA CONFERENCE REACTOR AND EXHIBITS

During the months of April, May, and June the Laboratory completed design, construction, and test operations of a pool type of research reactor for display at the Geneva Conference. The reactor was assembled and was tested in the pool of the Bulk Shielding Facility at ORNL during the month of June. After its performance was successfully demonstrated, the reactor and associated components were crated and were flown to Geneva by the Military Air Transport Service. The shipments left on June 30 from the McGhee-Tyson Airport (Knoxville).

Exhibits for installation in the reactor building and in other exhibit areas in Geneva were shipped from ORNL at the same time. ORNL personnel left for Geneva ahead of the shipments in order to be in Geneva in time to assure the safe delivery and disposal of the materials when they arrived.

SACLAY AND HARWELL TOURS

In view of the comparatively large number of ORNL personnel expected to be in Geneva at the time of the International Conference, arrangements were made with the British and French atomic energy organizations to provide group tours for ORNL personnel through the atomic energy facilities at Saclay, France, and Harwell, England. The Saclay tour was scheduled for August 23, the Harwell tour for August 26. It was believed

that group tours would be a more effective method of encouraging the interchange of scientific information than would a large number of individual visits. Arrangements for classified discussions at Harwell under the Technical Cooperation Program are expected to add materially to the benefits derived from the visits.

COST AND BUDGET STATUS FOR FY 1955

During FY 1955, research and development activities at the Oak Ridge National Laboratory were pursued at the levels indicated by the AEC. The Laboratory's total budget for all activities was 97.1% expended at the year's end. If the total operating funds are taken into consideration, ORNL spent, in FY 1955, 99.75% of the funds available from the Financial Plan and from revenue. Complete cost reports for the fiscal year show that the Laboratory experienced a 1.6% overrun in Programs 2000-6000. This overrun is attributable almost entirely to the Laboratory's crash programs in reactor development - the Homogeneous Reactor and Aircraft Reactor Projects, which overran 1.9 and 2.9%, respectively. For all other activities in Programs 2000-6000, FY 1955 costs amounted to 99.98% of their budgets.

COST AND BUDGET STATUS - SERVICE DIVISIONS

During FY 1955 the 13 ORNL service divisions incurred gross costs of \$12,090,883 against a

SERVICES AND ADMINISTRATION PROGRESS REPORT

total gross budget of \$12,293,500, giving a cost-to-budget ratio of 98.4%.

The cost versus budget performance for total allocated plant expense during FY 1955 reflected a 98.0% expenditure. The amount of support labor from Y-12 for reactor program work during the last quarter of FY 1955 was more than originally anticipated, and, as a result, the overhead allocation from Y-12 exceeded the budget slightly. On the other hand, the overhead charges from K-25 and X-10 service divisions (retained charges) underran their budget estimates, permitting a \$26,000 underrun to the total net overhead budget.

BROCHURES SUPPORTING ORNL CAPITAL PROJECTS FOR FY 1957

In support of the large capital projects proposed in the Laboratory's budget submission for FY 1957, brochures were prepared and submitted to the AEC on Expansion of the Criticality Facility, the East Research Building, and the Instrument Laboratory Building Addition. These brochures present more detailed information concerning the proposed new construction projects to supplement the standard construction project data sheets included in the formal budget presentation.

FRINGE BENEFITS AND SUPPLEMENTAL LABOR COSTS

Final arrangements were completed in June to change the Laboratory's method of costing certain fringe benefit and supplemental labor charges.

To effect the change, additional expense symbols were established, to become effective July 1, 1955. They will provide for the direct charging of certain costs carried as overhead items prior to July 1 and will serve as cost centers to collect charges on items such as jury duty, meal allowance, military duty, termination allowance, etc.

The revised method of costing not only sets out fringe benefit and supplemental labor charges so that they may be readily identified, but it also furthers the policy of charging cost-with-effort where practicable.

ABSENTEE REPORTING SYSTEM

Coincident with the plans effected during the quarter to establish new expense symbols on July 1, 1955, arrangements were completed to provide for a new method of reporting absenteeism.

After July 1, 1955, absentee reports will be prepared on a monthly basis by IBM tabulation.

Source data will be furnished for the IBM absentee report in the form of absentee symbols on the keysort cards which are already being utilized for IBM payroll tabulation. Thus a dual saving will be realized by making better use of an IBM card system already established and by eliminating most of the manual recordings required under the old system.

CHANGE IN INVENTORY CYCLE

Prior to July 1, 1955, the complete plant and equipment inventory had been scheduled on a cyclical basis to be completed once every three years, and the most recent cycle had been established to run from July 1, 1954, through June 30, 1957.

During June, plans were consummated to break the inventory into two cyclical periods and to establish the beginning dates as retroactive to July 1, 1954.

Portable items of equipment will be inventoried once every two years, and installed items of plant and equipment will be inventoried once every ten years.

After the first two-year inventory cycle for portable items has been completed, it is contemplated that the change in inventory methods will provide for a more economical inventory procedure.

MASTER CLOCKING SYSTEM

On June 22, 1955, eight time clocks in the 7000 Area were tied into the master line system. Prior to June 22 these clocks were checked and manually reset as required on a daily basis.

The automatic adjustment provided by the master clock from the master line system will save about \$1000 per year in clock maintenance costs.

INSURANCE AND COMPENSATION

The Group Life, Sickness, and Accident Insurance dividend for the policy year ending December 31, 1954, was distributed to employees on April 15, 1955. The 1954 dividend represented a return of approximately 35.4% of the amount that employees paid into the plan.

RECREATION

The revised policy of the Laboratory eliminating sponsorship of teams in city league or varsity

sports competition appears to have been accepted by Laboratory personnel, and greater effort is now being concentrated on intra-Laboratory activities. It is expected that under the revised policy a greater number of ORNL employees will participate in Company recreation activities and that the program will be more attractive to the average employee.

GRIEVANCES

During this quarter four grievances were filed in written form by the Atomic Trades and Labor Council. There were no grievances filed by the International Guards Union of America.

ARBITRATION

There were no arbitration cases.

2. PERSONNEL SERVICES

EMPLOYEE HEALTH SERVICES

As a replacement for a staff physician who resigned, the Laboratory has employed a new physician, who is particularly well qualified for the special problems encountered at ORNL, since in addition to his M.D. degree he has an M.A. degree in chemical engineering.

The services of a consultant nutritionist have been secured to provide informal on-the-job training in nutrition to the nursing staff. When the nurses have received sufficient instruction, they will begin recording 24-hour, recall-type diet histories on a representative portion of Laboratory personnel visiting the dispensary. It is hoped that analysis of this material will reveal problem areas which can be improved by future health-education efforts, especially by the nursing staff.

A consultant industrial hygienist visited the Laboratory in April for discussions of the special industrial hygiene problems of the Health Division and the Laboratory. It is anticipated that his visits will occur about every two or three months, enabling members of the Laboratory to receive expert advice on nonradiation, industrial hygiene problems.

SAFETY EXPERIENCE AT ORNL

The Laboratory completed the first half of 1955 with one disabling injury, which resulted in an over-all frequency rate of 0.39 and a severity rate of 39. The disabling injury occurred on May 23 and terminated an accident-free period of 2,226,900

manhours since the last disabling injury of December 14, 1954.

This period in excess of 1,500,000 manhours entitled the Laboratory to another bronze bar in recognition of its safety record and the employees to individual safety awards.

The AEC Award of Merit plaque was awarded to the Laboratory for notable achievement in preventing employee injuries for the year 1954. In 1954, Laboratory employees lowered their injury frequency rate 68% and their severity rate 94%. The plaque is one of only two awarded by the AEC for improvement since the AEC Award Plan was instituted.

FIRE EXPERIENCE AT ORNL

No major fire losses have occurred in the first half of 1955. Twenty-six fires have occurred, resulting in a loss of \$113.55, or a fire-loss ratio of 0.038 cent per \$100 of valuation.

Twelve fires have occurred during this reporting period, resulting in a loss of \$87.00, or a fire-loss ratio of 0.058 cent per \$100 valuation.

The week of April 17-23 was observed as Spring Cleanup Week. Emphasis was placed on promoting better housekeeping conditions and preventing fires. A complete report of the activities was prepared and routed to each division for review.

PHYSICAL SECURITY

Authorization has been received from the AEC to remove the Biology Division facilities from the

SERVICES AND ADMINISTRATION PROGRESS REPORT

Y-12 limited area. Construction of a new fence and guard post is under way to establish a new physical barrier to the Y-12 area. This change will permit the admittance of visitors by means of administrative control rather than by security clearance.

A fenced corridor has been provided from Guard Post 8 to the Research Reactor site, permitting the Blount Bros. Construction Company to use un-cleared construction workers on the job.

A similar arrangement consisting of a fenced island will be used for the construction of the Multicurie Fission Product Pilot Plant.

DECONTAMINATION FACILITY

The construction of the clothing decontamination facility, Building 2523, was completed in the early part of May, and the laundering and decontaminating of company-furnished clothing was started in the new facility on May 23, 1955. The Health Physics Monitoring and Surveying Section formerly located in Building 2515 is now housed in the new facility.

EMPLOYMENT

During the quarter, the functions of the Employment Department were consolidated and procedures for handling the work load were revised, enabling the staff to be reduced by two people.

PERSONNEL RECORDS

The Personnel Records office has been enlarged to relieve cramped working conditions. Retention

schedules for personnel files are being reduced, with the goal for reducing active files by 20 to 30%.

TEMPORARY EMPLOYEE HOUSING

Again this year the Personnel Department has provided assistance to consultants, research participants, and summer visitors in securing satisfactory housing. Fifty-seven vacancies, which occurred in April and May, were quickly filled in June by summer visitors, research participants, and consultants arriving for the summer program. In addition, about 30 people were housed in dormitories, and approximately 20 were placed in sub-leased private accommodations in Oak Ridge.

APPRENTICE TRAINING PROGRAM

The fourth ORNL Apprenticeship Program graduating exercise was held on Thursday, June 9, in the private dining room of the Laboratory cafeteria. Sixteen former apprentices, representing four crafts, received certificates of completion of apprenticeship.

ORNL STAFF CONFERENCE PROGRAM

Fifteen conferences were held during the latter part of April on the subject "Union Contracts." A total of 256 staff members attended in small-group meetings, which were conducted throughout by Industrial Relations Division personnel.

Sixteen conferences were held during June on the subject of "Wage and Salary Administration," with a total attendance of 244 staff members. These conferences were also conducted by Industrial Relations personnel.

PERSONNEL SUMMARY

A personnel summary for the quarter is given below.

	Week Ending April 3	Week Ending July 3
Permanent Employees, total	3273	3305
Hourly	976	962
Weekly	928	949
Monthly	1369	1394
Breakdown by Division		
Applied Nuclear Physics		42
Aircraft Reactor Engineering	132	148
Analytical Chemistry	208	202
Biology	116	121
Chemical Technology	184	186
Chemistry	112	112
Director's	31	35
Educational	11	11
Electronuclear Research	58	59
Engineering and Mechanical	795	787
General Office	122	122
Health	21	19
Health Physics	126	128
Industrial Relations	144	141
Information and Reports	89	90
Instrumentation and Controls	176	179
Laboratory Protection	144	143
Libraries	33	35
Materials Chemistry	96	97
Mathematics Panel	24	25
Metallurgy	126	132
Operations	97	98
Physics	109	72
Reactor Experimental Engineering	176	174
Research Director	22	23
Stable Isotope Research and Production	60	60
Solid State	61	64
Total	3273	3305

Changes in Personnel During Quarter

Hires	75
Transfers in	25
Transfers out	4
Terminations	64

3. ORGANIZATION AND POLICY CHANGES

OPERATING POLICIES AND PROCEDURES

Laboratory policy adjustments released during the quarter are summarized below.

Official Bulletins

- DD-No. 71 Transportation for Laboratory Visitors
- DD-No. 72 Foreign Requests for Reprints
- DD-No. 73 Display of Geneva Reactor Equipment
- DD-No. 74 Disposal of Government Materials
- DD-No. 75 Authority to Classify Security Information
- AR-No. 296 Registered Mail and Parcel Post
- AR-No. 297 Changes in Accounting Symbols and Absentee Reporting
- AR-No. 298 Visits to Laboratory Projects by Members of Study Groups
- AR-No. 299 Stamping of Memoranda for Internal Use

- AI-No. 293 Payment of 1954 Group Life, Sickness and Accident Insurance Dividend
- AI-No. 296 Savings Plan Checks
- AI-No. 297 Changes in the Designation of Deductions for the Savings Plan

Revised Standard Practice Procedures

- D-1-11 Supplement, Absence for Warranted Personal Reasons, Page 1 revised
- D-5-3 Graduate University Study, Page 2 revised
- 31-A Source, Fissionable, and Special Materials
- 53-A Top Secret Information

New Standard Practice Procedures

- D-2-6 The Handling of Damaged or Defective Material
- D-5-12 Use of Government-owned Motor Vehicles

4. CONSTRUCTION AND MAINTENANCE PROJECTS

PROJECTS COMPLETED

Metallographic Cell

The design, fabrication, assembly, and installation of the Metallographic Cell, which is located in Solid State Building 3025, were performed by Laboratory personnel.

Metal Storage Facility

ORNL furnished Title I, II, and III engineering services and connection of utilities for the Metal Storage Facility; the contract work was performed by Rentenbach and Wright Construction Company under a Carbide subcontract.

Shielding Laboratory

The construction of a one-story steel-framed, sheet-metal-sided addition to the existing Shielding Laboratory, Building 3010, was performed by

the Charles Hobson Company under a Carbide subcontract. Title I, II, and III engineering services and minor miscellaneous contractor assistance were supplied by the Laboratory.

Corrosion Examination Facility

Laboratory personnel performed all work required for the installation of the Corrosion Examination Facility, which is located on the first floor of the High-Level Radiochemical Laboratory, Building 4501. The facility was installed at the request of the Reactor Experimental Engineering Division to provide an adequate shielded work area for the preparation of radioactive specimens for detailed metallurgical examination and testing.

Clothing Decontamination and Monitoring Facility

The Charles Hobson Company installed the Clothing Decontamination and Monitoring Facility

under a Carbide subcontract. ORNL furnished Title I and III engineering services, installed a temporary exclusion fence, and provided extensions and connections of utilities. Title II engineering was performed by the Barber and McMurry architect-engineers.

Multi-Kilocurie Loading Cell

The Carl S. Helrich Company installed the high-density concrete cell built into the Remote Control Cell, Building 3029. The Laboratory's participation consisted in furnishing Title I, II, and III engineering and miscellaneous contractor assistance and the procurement and installation of manipulators.

Source and Fissionable Materials Storage Vault

The Laboratory provided the engineering and connections of utilities for the Source and Fissionable Materials Storage Vault. The V. L. Nicholson Company constructed the building under a Carbide subcontract.

Geneva Conference Reactor and Exhibits

During the quarter, the Engineering and Mechanical Division expended considerable effort on the design, fabrication, assembly, and shipping of the Geneva Reactor and its components and on various process models, exhibits, and a model of the exhibit building. Because of the urgency for completing this project early in July, the engineering and the shop work were performed on a top-priority basis.

ACTIVE PROJECTS

Solid State Building

Contract work by the Troy Construction Company was started in the last week of March. According to the contract schedule, 17% of the work was to be completed by the end of the quarter. However, rock excavation in excess of that originally anticipated delayed the work and resulted in the completion of only 13% of the work.

Homogeneous Reactor Test

The Atomic Energy Commission was requested to extend the completion date for HRT building modifications from June 30 to September 30. Additions to the V. L. Nicholson contract with respect

to the installation of the cells and appurtenances have made it necessary to further defer major construction effort on the building extension. The shop-fabricated steel cell liners were in the process of being erected by the contractor at the end of the quarter.

Very good progress has been made on other phases of the project by the contractor and by the Laboratory. Current schedules indicate that the Laboratory will start installation work on the reactor components in the first week of the next quarter. Many of these components have been fabricated in ORNL shops, with as much pre-assembly being accomplished as possible.

High-Radiation-Level Analytical Facility

A request for an extension of the completion date for the High-Radiation-Level Analytical Facility from June 30 to October 30 was submitted to the Atomic Energy Commission. The extended date was established on the basis of the manipulators being received by August 15 and one and a half months allowed for the installation of these and other specialized equipment.

At the end of the quarter the contract work was 95% complete. It is expected that final acceptance of this phase of the project will occur early in the next quarter.

Automatic Fire Protection

The plans and specifications for the automatic fire protection system were completed in May and were released for use in soliciting bids. The Grinnell Company, Inc., Chattanooga, Tennessee, submitted the low bid of \$61,887 and was subsequently awarded a Carbide subcontract. The installation of sprinklers in ten buildings is scheduled to start early in the next quarter.

Research Reactor (ORR)

An AEC prime contract No. AT-(40-1)-1950 was awarded in June to the Blount Bros. Construction Company, Montgomery, Alabama, for the construction of the Research Reactor building and related facilities. Directive No. CL-143, Modification No. 6, revises Section II of the directive to reflect the contract bid price of \$2,283,000 plus \$7,000 for a government-furnished crane and \$106,000 for contingencies. The contract was awarded on the basis of a 310-day construction period. Contract

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work was started in June. The design of the reactor components, which is being done by the Laboratory, is now 86% complete.

ARE, Building 7503

Dismantling work on the ARE reactor and components was completed by the end of the quarter. Samples from the main fuel pump, the hot fuel dump tank, and three valves will be furnished to the Metallurgy Division early in next quarter for an analysis of corrosion on these items. General cleanup of the building in preparation for the proposed ART contract will be completed by the middle of next quarter.

In-Pile Loop

The design of the portable in-pile loop, which was originally intended for use in either the LITR or the ORR, was changed to eliminate the portable feature of the loop. The name for the installation was also changed to "In-Pile Loop, HB-2." Considerable engineering effort has been expended on the design of building alterations and equipment items, and at the end of the quarter approximately 95% of the definitive design had been completed.

Field work was started on about June 22, and according to current schedules it is expected that the entire installation will be completed by the end of September.

The design for a sample transfer facility, which will be in the hot analytical area of the Chemical Processing Pilot Plant, Building 3019, was started. The facility will consist of a lead-shielded stainless steel container, loading tube, and equipment for flushing and decontaminating the container and tube. This equipment will expedite the handling and transfer of the radioactive liquid samples from the LITR loops to the hot analytical cells.

Revisions to the piping and valving in the LITR radiation exposure hole (HB-4) equipment chambers and the installation of a reagent reservoir on the loop circulating system were made in the last half of the quarter.

Tests on the fourth in-pile loop in HB-4 were concluded, and the fifth loop assembly was installed in the LITR on June 28.

Multicurie Fission Product Pilot Plant

The plans and specifications for the Multicurie Fission Product Pilot Plant, which were prepared by the John McPherson and Sons architect-engineers, were completed in June and submitted to the Atomic

Energy Commission for advertising for bids. It is expected that an AEC prime contract will be awarded early in the next quarter for the construction of the building and appurtenances.

The over-all design effort at the end of the quarter was 94% complete. All the design is scheduled for completion by the end of August.

The Laboratory's portion of the work was started on about the first of June, and by the end of the quarter approximately 5% of the work scheduled was completed. Most of this work involved the relocation of utilities and the removal of contaminated earth.

Field Shop, Building 7506

The V. L. Nicholson Company submitted the low bid of \$26,486 for the erection of the Field Shop, which is to be a prefabricated metal structure. The contract work was started in May, and at the end of the quarter 78% of the contract had been completed. It is expected that the final inspection and acceptance of the building will be made by August 15.

The Laboratory issued requisitions in May for the procurement of the shop equipment for this facility.

PROJECTS IN DESIGN STAGES

Lead Shop, Building 7005

The plans and specifications for the contract work on the Lead Shop were 90% complete by the end of the quarter. It is anticipated that Title I and II engineering will be completed early in next quarter and that a contract will be awarded and construction work started by the middle of the quarter.

ART Facility, Building 7503

It is expected that the plans and specifications for the construction of an extension to the south end of the ART Building 7503 will be available for submission to the Atomic Energy Commission by the end of July for the awarding of a prime construction contract.

Process Waste Water Treatment Plant

The Process Waste Water Treatment Plant project will consist in the construction of a two-story concrete-block chemical feeder building, 31 x 17 x 20 feet; the installation of a coagulation-sedimentation, raw-waste treatment unit having sufficient

capacity to process 500,000 gallons per day; the installation of a sludge tank; and the installation of pumps, pipes, instrumentation, and accessories.

Directive No. CL-174 was issued in April authorizing Title I, II, and III engineering services. Work by the Laboratory, consisting in the preparation of design criteria for an architect-engineer, was completed near the end of the quarter. An AEC prime contract No. AT-(40-1)-2008 was awarded to the architect-engineering firm of Burns & McDonnell for the preparation of Titles I, II, and III engineering. The preparation of a preliminary report by this company was started by the end of the quarter. This report is scheduled to be presented to the Laboratory and the Atomic Energy Commission for review early in next quarter. It is anticipated that Title I and II engineering will be completed and that a prime construction contract will be awarded by the end of next quarter.

PROJECTS PROPOSED

Additional Boiler for Steam Plant

A preliminary proposal and a request for directive were submitted to the Atomic Energy Commission in June. The proposed work will consist in providing foundations for the boiler and in installing a gas-fired boiler with a capacity of 50,000 pounds per hour, with auxiliary oil burners, draft fans, pumps, safety valves, fittings, flue, etc.

A portion of the existing concrete floor in the east bay of the Steam Plant Building 2519 will be removed to permit excavation, to firm bearing, for the installation of the concrete foundations for the boiler. Steel grating walkways on structural steel supports will be installed to provide access for maintenance. The flue duct will extend through the roof and will be connected to the existing stack breeching. Structural supports for the duct will be attached to the existing steel framing.

A new panel board will be installed, and power connections will be made to existing electrical facilities. Natural gas and fuel oil are available in the building, and only minor work for connections will be required.

The major portion of the engineering design on this installation will be supplied by the vendor of the boiler as part of the boiler purchase. The balance of the engineering services required, which consist in preparing specifications, drawings for the extension of utilities and services,

coordination, and inspection, will be furnished by ORNL.

The Atomic Energy Commission will award a lump-sum prime contract for the installation of the boiler and appurtenances.

ORNL PROJECTS IN THE Y-12 PLANT

Consolidation of Research Facilities, Building 9207

The research facilities of the Materials Chemistry and the Analytical Chemistry Divisions of ORNL, now located in several temporary buildings at Y-12, are to be consolidated in one permanent structure. A construction request has been prepared for presentation to the AEC, requesting funds to renovate the B-T section of Building 9207 and to install laboratories similar to those in Building 4500 at X-10.

Approximately 65,000 square feet of floor space will be made available on the third, fourth, and fifth floors for the Materials Chemistry and Analytical Chemistry Divisions. The second floor will be renovated and made into office space for Biology Division personnel who are now located in temporary buildings.

The proposed construction, not including equipment, is estimated to cost \$1,150,000 and is scheduled to be completed in 1956.

Raw Materials Milling Facility, Building 9207

A new raw materials grinding, milling, and testing pilot plant has just been completed in the 9207 B-T section that is to provide permanent quarters for the Materials Chemistry Division. This new facility occupies approximately 12,000 square feet of floor space and extends from the third through the sixth floors of the building. Installation and construction were performed by the Rust Engineering Company. Equipment was supplied by Carbide under the supervision of the Raw Materials Chemistry group.

Expansion of Mouse Genetics Facilities, Building 9210

To provide for a new biological research program on the effects of repeated exposure to low levels of radiation, a preliminary proposal has been sent to the AEC requesting permission to double the present mouse genetics research facilities located in Building 9210. Approximately

[REDACTED]

20,000 square feet of floor space, located on the second floor of Building 9210, will be renovated and made into animal farms and research laboratories capable of accommodating 70,000 mice. The entire area will have temperature and humidity control. The cost is estimated at \$391,000, and construction is scheduled to be completed by January 1956.

**Aircraft Reactor Engineering Division,
Building 9201-3**

ART Heat Exchanger Test Loops. - Engineering design and construction were completed during this period for all services and utilities needed to operate three, 1-megawatt, gas-fired furnaces. These furnaces will supply the heat load required for fuels and coolants used in testing ART heat exchangers. The Rust Engineering Company was the subcontractor for installation of electrical load centers, natural gas distribution system, foundations, and No. 1 furnace installation. Fabrication and installation of the No. 1 heat exchanger test loop were carried out by Y-12 forces. This loop is now in operation.

Electrical Distribution System. - The power requirements of ART development work have more than doubled the electrical load in the ARED Building 9201-3. A new electric power distribution system has been installed throughout the building, and two of the scheduled three, new, 500-kva transformers have been installed. This electrical work was performed by Y-12 forces.

48-in. Cyclotron Shielded Room

Preliminary engineering has been completed for a shielded room to house the 48-in. cyclotron. The proposed facility will be on the same level and adjacent to the basement of the Electronuclear Research Building 9204-3. Since the room will be below ground level, earth will supply most of the neutron shielding. The shielded room is estimated to cost \$83,000 and is scheduled to be completed by the spring of 1956. The cyclotron is proposed for completion during FY-57.

**Atmospheric Control for Criticality Laboratory,
Building 9213**

Engineering design has been completed for installation of air conditioning in certain areas of Building 9213 not presently air conditioned. Installation by the Rust Engineering Company is scheduled to be completed during the next quarter.

Motor-Generator-Set Installation

The installation of a 500-kw motor generator set, which has been purchased for use in Building 9731, is presently being engineered. This larger capacity motor generator will permit expansion of the calutron facilities for electromagnetic separation of stable isotopes.

Sherwood Project

Extensive work has been done in the Electro-nuclear Research Building 9204-3 in preparation for experiments that are to be performed to check the validity of theoretical studies. This work included the reactivation of the distilled water system, installation of a distilled water header and pump, and modifications to the motor generator set in this building.

Variable-Frequency Power Supply

Two motor generator sets have been procured from the K-25 Plant and are to be installed in Building 9204-1 to provide the required variable-frequency power for controlled pumping rates in large test loops. This installation is scheduled to start in July and is scheduled for completion during the quarter.

Mammalian Radiation Recovery Laboratory

Complete engineering has been furnished to the Rust Engineering Company for the installation of the Mammalian Radiation Recovery Laboratory on the fourth floor of Building 9207. This laboratory installation will be completed early in the next quarter.

D-C Power Supply

Engineering has been completed for the installation of a 15-kw, d-c, diesel generator power supply for experimental uses throughout the Reactor Experimental Engineering Building 9204-1. This installation is scheduled for completion in August 1955.

Calutron Expansion

Work has been initiated on the expansion of the present stable isotope separation facilities in Building 9731 by the installation of two additional tanks, control cubicles, and associated equipment. This expansion is scheduled for completion early in 1956.