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MONTHLY REPORT - PROCESS SECTION

MANUFACTURING DIVISION

FEBRUARY 1956



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E. I. du Pont de Nemours & Co. (Inc.)
Explosives Department - Atomic Energy Division
Wilmington, Delaware

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TABLE OF CONTENTS

	<u>Pages</u>
100 Area - Reactors	4-7
200 Area - Separations Plants	8-11
300 Area - Reactor Fuels Fabrication	12-13
400 Area - Heavy Water	14
Utilities and General Services	15-18



[REDACTED]

SAVANNAH RIVER PLANT

100 AREA - REACTORS

POWER ASCENSION PROGRAM

1. Hollow Fuel Slugs

Measurements of more than 100 Sylvania hot-press-bonded slugs (SEP) and more than 200 SRP Al-Si bonded slugs (SRP) from the R-8 discharge show that dimensional changes of the latter are about the same as for solid slugs, but changes of the SEP slugs, while not large, are about three times as great. Reasons for this are under investigation, but the external appearance of both types is good.

The R-10 charge will include approximately 150 Q-foils of SEP slugs and 250 of SRP slugs.

2. Traveling Wire Monitor

The traveling wire monitor has been installed in L Area, where it has been used successfully in measuring axial flux distribution in L-9 spiked charge. After minor mechanical changes to prevent wire from catching in the guide tube and to facilitate coiling of the irradiated wire in a disposal bucket, the unit has been fulfilling its intended use.

3. Low Pressurization of Blanket Gas

Test of a blanket gas room in C Purification Area with gas recirculating at 5 psig revealed no weaknesses requiring design change. One of the four blower seals was found to be defective and leaked excessively, but otherwise the leakage increased from 50 - 100 c.f./day at 10 inches of water pressure to only 150 - 200 c.f./day at 5 psig.

With present perforated aluminum safety rod thimbles, 5 psig gas pressure would force moderator up through the thimbles and out upon the top of the reactor. Unperforated aluminum thimbles are believed to be unsatisfactory for extended use because of possible formation of nitric acid inside the thimbles from radiation effects, which would cause corrosion products to accumulate and perhaps interfere with dropping of the safety rods. Failure by corrosion would permit moderator to fill the thimbles, thus damping excessively the entry of the safety rod into the reactor.

Zirconium has the desired corrosion resistance and low neutron cross-section. Twelve thimbles made entirely of zirconium were obtained in 1954 to permit development of fabrication techniques and to test their performance. Three of these are now

POWER ASCENSION PROGRAM (Continued)

under test in "C" reactor. Based on estimated value of additional tritium produced through reduced capture of neutrons, the return on cost of zirconium thimbles would be about 50% per annum. The time required for development and procurement may necessitate temporary use of solid aluminum thimbles.

Another design problem is the prevention of gas leakage at the plenum skirt seal. The channel around the skirt is now filled with Gaco, which is a neoprene rubber troweling compound. This method of sealing is considered questionable for operation at pressures much higher than the present ten inches of water. A number of alternative solutions to the problem are being investigated.

4. Location System for Fuel Ruptures

The proposed rupture location system, for which basic laboratory studies and design of prototype are in progress, will utilize a small cyclone for collection of rupture particles from each fuel position. The cyclones will be located outside the pin room under the reactor and will discharge to a common header. The Dorr-Oliver Co. has supplied two stainless steel cyclones of 10 mm inside diameter for further laboratory tests of collection efficiency under various conditions. The cyclones have different surface finishes to permit evaluation of the effect of roughness, which is believed to be an important factor in cyclones of such small diameter.

Indirect repair orders have been prepared at SRP to cover fabrication and installation of a six-cyclone model for hydraulic testing in the laboratory and a 25-cyclone prototype for hydraulic and physics testing in a reactor. It is planned to complete test work by September, and then if successful to undertake final design and procurement of a full scale unit.

Collection of particles for rupture location appears possible only with natural fuel. Current experimental evidence for enriched fuel of 5% to 15% U-235 alloyed with aluminum is that the rate of release of fission products will be too slow, and that they will be largely in solution or in particles too small for collection. The cyclone system is therefore being designed so that replacement of the cyclones with miniature deionizers or other devices can be effected.

PRODUCTIVITY IMPROVEMENT STUDIES

1. NFE Studies

The design of extended surface fuel elements will in general require little change in the reactors or their controls. A general scope of work has been prepared covering alterations

[REDACTED]

PRODUCTIVITY IMPROVEMENT STUDIES (Continued)

in the assembly and disassembly areas to permit processing these elements, in preparation for, and after, irradiation. The first step in utilizing these new elements will be to prepare Building 105-C to process the Mark VI element with design kept flexible to permit a changeover to other elements at some future date. A Part I appropriation request covering design work with limited procurement and construction will be submitted about May 1, 1956.

2. Increased Moderator Circulation

Project S8-1037-I has been submitted to authorize procurement of major equipment to increase the process water pumping capacity in Buildings 105-R, P, L, and K. This project will also provide a construction cost estimate covering complete installation of this equipment.

A construction cost estimate to support a final (Part II) request on Project S8-1022 covering increased moderator circulation in Building 105-C will be available about April 1, 1956. Under the authorized Part I of this project the Bingham Pump Co. are manufacturing seven new pumps. The major castings for the first pump were rejected because of shrinkage cracks. New castings have been made, and preliminary X-ray examination indicates that they are sound. Any delay caused by loss of the first castings is not expected to exceed 2 or 3 weeks.

NEW REACTOR STUDIES

1. Site

The Engineering Department has presented results of an investigation of various possible sites for a twin reactor area. The recommended location is at approximately N-57000, E-28000 and elevation 175 ft. This is approximately two miles from the 400 Area, 1/2 mile east of the C&WC Railroad, and 3/4 mile south of Four Mile Creek. If desired, the location could be somewhat farther south and east at some penalty in construction and pumping cost. The investment plus ten-year pumping cost for the recommended site, based on 300,000 gpm total for the two reactors, would be about \$5,000,000 less than for another attractive location at about N-55000, E-33000 with elevation 275 ft. and about \$12,000,000 less than for the formerly designated site "W".

GENERAL

1. Procurement of Quatrefoils

The Harvey Machine Co. were among suppliers who had been requested to develop a process for the manufacture of the quatrefoil. They have since produced a number of shapes used in the development of the extended surface fuel elements. However, their

GENERAL (Continued)

efforts on the quatrefoil have not been successful and the order covering this work has been cancelled.

The Reynolds Metals Co. are producing quatrefoil extrusions at their Phoenix, Arizona, plant. The first shipments have arrived at SRP and regular production will continue. Only minor quality inspection problems were encountered on these first shipments.

2. Shipment of LMF Slugs

At the request of SROO, the fabrication of the four special LMF casks has been put on a premium time basis. Scheduled completion dates are now March 9 for the first cask and March 24 for the last one. Preparations are under way at SRP to start shipment of slugs to Arco as soon as the casks are available.

[REDACTED]

SAVANNAH RIVER PLANT

SEPARATIONS PLANTS - 200 AREA

GENERAL

As reported last month, the processing of short-cooled metal had increased the activity release to the vent systems in both areas. However, with increased aging of feed material, activity levels in "F" and "H" streams have dropped back to former levels with a corresponding reduction in activity released to the atmosphere.

A test of acid recovery from high activity waste in F Area has been in progress during most of the month. Thus far, under the favorable conditions of the start-up flowsheet, performance has been satisfactory. Waste volume reduction up to 50% of that experienced from an alkaline evaporation has thus far been achieved. The limitations on such operating variables as feed concentration and nitrite addition are now being established. Further reductions in waste volume are anticipated.

Waste storage tank No. 2, which is nearly full of high level waste, is exhibiting a wide temperature divergence between the bottom layer and supernate presumably indicative of a build up of sludge containing concentrated fission products.

SEPARATIONS PLANTS

1. 221-H - Acid Recovery from High Activity Waste

In view of the promising results obtained from the test in F Area, the Engineering Department has been requested to provide the equipment for a similar system to recover acid from the high activity waste in Building 221-H. Design of this equipment has been completed.

B-LINE

1. 221-H - Product Recovery

Studies of the deficiencies of the 221-F product recovery facilities to improve the design of the 221-H facility revealed means of improving F Area operability and capacity to the extent that the installation in H Area is not now required. Procurement and construction have been stopped, and design will be terminated when basic drawings have been completed and approved. The work to date will be assembled in a manner that will permit its resumption with a minimum of effort.

A-LINE

1. 221-F - Increased Capacity Denitration Pot

Recent difficulties with plugging of denitrator off-gas piping have led to a review of the piping configuration associated with

A-LINE (Continued)

the installation of the No. 6 deeper denitration pot. It has been concluded that, while the proposed piping configuration may not be optimum from the standpoint of conveying oxide fines, it will work and proposed changes should not be made at the expense of a delay in completion, since it is desirable to obtain denitration data as soon as possible to provide a basis for ordering EM pots and for future capacity increases. Off-gas lines will be steam traced to prevent vapor condensation in the vicinity of the pot since this was shown to be effective in relieving the plugging on No. 2 pot.

Furthermore, the best solution to the plugging problem would seem to be the installation of an individual dust separator on each pot. Engineering will be requested to study feasibility.

WASTE DISPOSAL

1. 241-H - Waste Transfer Pumps

The first waste transfer pump which was fabricated by the Wilmington Shops has been assembled in Building 717. It has been run dry and is currently undergoing engineering tests before being sent to TNX for performance and life testing.

2. 242-F - External Waste Evaporator

The piping diagram for the waste evaporator has been reviewed and returned to the Engineering Department with comments. It has been agreed to send the process and steam condensate from the evaporator to the existing seepage basins to utilize the existing health physics monitoring facilities. The addition of this load to the presently contemplated flow to the seepage basins will raise the seepage basin effluent to the design rating.

3. 241-F - Additional Waste Storage

The Part I S-8 project papers have been transmitted to the AEC for approval. Pending authorization, details of the proposed installation are being reviewed to permit writing a scope for firm design and making a construction cost estimate.

TRITIUM PROCESSING

1. 232-H - Rehabilitation

Painting specifications for the process areas of Building 232-H have been relaxed to permit the use of standard enamel on ceilings and walls with the exception of the walls in the process

[REDACTED]

TRITIUM PROCESSING (Continued)

equipment room which will be Amercoated to seven feet above the highest working platform. Floors will be Amercoated.

The Engineering Department is investigating the installation of available diffusers to replace sorbers in the first process line and the need for revisions to the CO vessel to provide positive and adjustable tension on the electrode. The decanning machine originally procured for the first process line is being modified by the operating department in line with F Area experience before installation. Even after modification it is unlikely that this unit will be wholly satisfactory so the required features for a future decanner have been transmitted to Engineering to permit design studies for a new unit. Concurrently, the need for a decanner is being reviewed in terms of the new fuel elements and expected consumer requirements for the product.

2. Julep

The Order-of-Magnitude Estimate (\$4,400,000) for this facility has been received and a draft of the project is circulating for approval.

The location of Building 234-H has been selected and the plot plan approved. The piping diagram is now considered firm. It is anticipated that prototyping of critical equipment will be started before the end of March.

Comments on the proposed design of containers have been discussed with the customer.

INCREASED CAPACITY

1. 221-F - Increased Throughput

Part I of Project S8-1025, 200-F Area Increased Throughput, in the amount of \$7,000,000 has been approved. Revised flowsheet information incorporating the results of recent plant tests have been transmitted to the Engineering Department to permit revising and reissuing the major flow diagrams.

Quotations have been received for all major new canyon equipment with all bids within 10% of the costs assumed in the order of magnitude estimate.

In view of the encouraging results from the F Area high activity waste and recovery test, design is proceeding assuming no new shielded acid concentrator will be required in the 211 Area. Design of the new segregated solvent basin and cold feed preparation area are proceeding.

[REDACTED]

INCREASED CAPACITY (Continued)

Design of the long element dissolver has been initiated and is being made adaptable for use with "sweetened" material. A new type jet jumper which does not use a connector on the tank nozzle is being investigated for use on the bath tub tanks. This type jumper not only saves the price of a connector but reduces jet suction lift and should simplify jumper mock-up.

Preliminary copies of the new canyon scrolls have been reviewed with the Engineering Department. Considerable design work has been completed on the new jumpers required and it is intended to start releasing construction on those canyon jumpers which are considered firm by mid-March.

2. B-LINE


A revised scope based on the trifluoride process has been submitted to Estimating with a goal availability of April 1 for the evaluation estimate. Meanwhile, supporting data on capacities and operating costs are being assembled to permit early release of the B-Line work.

"25" RECOVERY PLANT

Basic data for the preparation of an evaluation estimate is being assembled. The following are being assumed for the purpose of this estimate:

- a. The process will be the TBP solvent extraction system proposed by ORNL with the addition of a head-end step to more adequately assure product specifications.
- b. The plant will be designed for contact maintenance although some remote operating steps such as dissolver charging may be found necessary.
- c. The plant will be located in H Area and integrated with existing service facilities insofar as is practical.
- d. The capacity of the H Area canyon may be reduced to provide the service facilities required for the "25" plant.

Transmittal of the evaluation estimate is tentatively scheduled for the end of June.


SAVANNAH RIVER PLANT

REACTOR FUELS FABRICATION - 300 AREA

INCREASED PRODUCTIVITY PROGRAM

1. Extended Surface Enriched Elements-Mark VI Program

a. Fuel Facility - Building 321

Construction Division review of the Order-of-Magnitude Estimate covering fabrication of the Mark VI fuel production facility (Building 321) has essentially been completed. It is anticipated that the Order-of-Magnitude Estimate and Part I project allocation request will be forthcoming from the Engineering Department sometime during the week of March 12. A new consolidated metallurgical process control laboratory has been included as a part of the enriched fuel facility and funds for procurement of critical metallurgical laboratory delivery items will be incorporated in the Part I request. The estimate will cover installation of all necessary services required for complete independence from the natural fuel facility project.

To expedite procurement of long delivery items, specifications have been prepared and requests for quotation have been issued to vendors on a new extrusion press and on mold outgassing facilities. Specifications are currently being prepared on other limiting equipment.

Concern over the operating costs involved in recovering dross and skulls produced in the enriched alloy air melting operation prompted an intensive study of recovery problems associated with air versus vacuum melting. Experiments conducted by SRL during the month have indicated that improved skimming techniques and possible elimination of all gas sparging will reduce dross formation in an air melt to 1% or less. Under these conditions the higher initial capital investment and continued higher operating costs associated with vacuum furnaces cannot be justified. However, there is presumably an alloy quality advantage attainable through use of vacuum melting and casting. Although the metal quality question has not been resolved, design is proceeding on the basis of the presently demonstrated air melting process.

At AED's request Engineering is drafting an over-all summary of the security and accountability concepts upon which design of the Mark VI fuel facility is based. This proposal will be forwarded to AEC in the near future for information and concurrence.

[REDACTED]

INCREASED PRODUCTIVITY PROGRAM (Continued)

A revised basic Laboratory Design Data Report covering Mark VI fuel element fabrication was completed by SRL and released to the Process Section during the month.

b. Target Facility - Building 320 Expansion

Construction Division review of the Order-of-Magnitude Estimate covering expansion of Building 320-M is essentially complete. It is anticipated that both the Order-of-Magnitude Estimate and Part I allocation request will be forthcoming from Engineering simultaneous with the Building 321 estimates. At AED's request, funds will be provided in the Part I for procurement and installation of new equipment necessary for machining and finishing of the Mark VI lithium-aluminum target slugs. This will permit the installation of final processing equipment, if it is available before authorization of a Part II, and will facilitate interim production in Building 320 for a partial or full Mark VI reactor loading schedule prior to completion of Building 321. Engineering has also been requested to incorporate an allowance in the Mark VI estimate for an addition to the existing 320 Building to provide space for general plant analytical laboratory facilities.

Specifications have been prepared and requests for quotation have been issued to vendors on a new vacuum furnace and on vacuum outgassing facilities to expedite procurement of this equipment.

2. Extended Surface Natural Uranium Elements-Mark III Program

The order-of-magnitude estimates and Part I project allocation requests for both the full and reduced capacity cases are scheduled for release from the Engineering Department during the week of March 2. Firm design is proceeding.

GENERAL

1.. Hollow Uranium Slugs - Mark VII Program

Processing of Mark VII slugs was completed during the month for the R-10 loading. Sufficient slugs, acceptable by 300 Area standards, were shipped to the 100 Area for a full core loading.

By March 1, Sylvania will have completed their phase of drilling cores for the Mark VII program. The manpower previously used for core drilling will then be utilized to increase their canning rate from 400/day to 800-900/day. Consequently, the core allocation from Fernald for the period March 1 to June 30 will be proportionately increased.

[REDACTED]

GENERAL (Continued)

2. 300 Area Quatrefoil Fabrication


The 300 Area has been equipped to inspect and assemble quatrefoil extrusions, made by Reynolds Metal, in order to establish an alternate supplier of this component.

An initial shipment of 168 tubes has been received at SRP and is currently being inspected. Initial inspection indicated approximately 50% of the extrusions were slightly out of specification for rib height and channel orientation, but not sufficiently to make them unusable. The specifications have since been modified and approximately 100 tubes have been inspected, with an acceptance yield of 98%.

3. Vertical Salt Bath Installation - Building 1001

A Part II covering an overrun of \$24,600 on the Indirect Repair Order authorizing installation of the vertical salt bath in the temporary pneumatic pressing building has been prepared and is currently awaiting final AEC approval. Modification of the air and water effluent systems in Building T-1001, necessary to minimize contamination of the adjoining Bio-assay building, will not be included on this order.

Review of applicable drawings has been completed and comments have been forwarded to Engineering.


HEAVY WATER

DANA PLANT

1. Experimental Sieve Tray Installation

Atomic Energy Commission authorization has been obtained for an experimental sieve tray installation in one first stage GS tower pair at Dana. Attention is currently focused on expediting procurement of the sieve trays in time for installation in Unit 201, where extra tower nozzles are available for intermediate liquid phase composition determinations.

2. Inspection of Dana GS Tray Replacements

An Engineering work request in the amount of \$9,000 was initiated and authorized during February to cover M&E expenditures for inspection of replacement type 304 stainless steel bubble cap trays fabricated by F. W. Glitsch. Current schedules call for delivery of one sixth of the present Glitsch order by April 1.

3. Pilot Plant Dismantelement

Dismantlement of the GS process pilot plant, which has been idle for approximately 4 years, is currently in process. Dana has been requested to examine various components as they are removed to assess, if possible, the rate of deterioration that might be expected in the event present operating units are shut down for any extended period.

SAVANNAH RIVER PLANT - 400 AREA

1. Procurement of Additional Stainless Steel Drums

The project covering procurement of an additional 1500 type 304 stainless steel drums for heavy water storage through Fiscal Year 1957 has been approved by AEC. Requests for quotations have been submitted to Cleveland Steel Barrel, Pressed Steel and U. S. Steel.

2. Procurement of Replacement Heat Exchanger Tubes Fabricated by Helical

Failure of type 316 stainless steel strip and finished tubing samples to pass the specified nitric acid corrosion test has been attributed to improper heat treatment. Steps are being taken to eliminate this defect.


SAVANNAH RIVER PLANT

UTILITIES AND GENERAL SERVICES

ADMINISTRATIVE, TECHNICAL, AND GENERAL SERVICES

A meeting was held with the AEC on February 16 at SRP to review a proposed contract with the South Carolina Electric and Gas Co. for the supply of electric power for the Productivity Improvement Program. This new contract is for an initial 20 MW, becoming 40 MW in June 1957, and increasing to 65 MW in January 1958. This contract would be in addition to the original contract for 30 MW and would cancel the present supplementary contract for 20 MW the first six months and 10 MW the second six months of the year. When these increases are added to the original contract for 30 MW, the total purchased power becomes 95 MW. As a result of suggestions made by the AEC representatives at the February 16 meeting relating to the duration of the contract and cancellation charges, the Utility is preparing a revised draft.

A meeting was held with the South Carolina Electric and Gas Co. on February 3 in Columbia, South Carolina, to discuss the operating arrangement of the bus structure at Urquhart Station. The Utility has, for reasons incident to present operations problems, not been operating the station on a ring bus basis, as had been previously understood. The ring bus arrangement provides optimum reliability for SRP service. It should be noted, however, that SRP service has been continuous and very satisfactory to date. At the meeting, the Utility agreed to install the necessary equipment for a ring bus arrangement by the time the proposed new transmission facilities to SRP are installed.

"P" Work Order 6019-H, \$325,000, for initial construction work on Engineering Assistance Facility Building 723-A, was authorized by the AEC. Architectural and plot plan drawings were approved and issued to Construction Division for field work. Building (structural) design is essentially complete.

Final Area Acceptance papers (without exceptions) for the 100-C Area were issued establishing February 10, 1956, as the completion date for that area. Area Acceptance papers (with exceptions) were issued for the 200-H Area. For Project 8980 all areas have now been accepted with only the 200-F and 200-H Areas having exceptions to be completed.

Preliminary architectural plans for the proposed High Level Caves expansion at the Technical Laboratory Building 773-A were received and approved. Alternate types of cave windows and doors were reviewed and a decision made to use 30" x 36" oil filled cave windows and guillotine type doors.

Revised schedules of the Productivity Improvement Program showing objective dates for project authorizations and completions were transmitted to the AEC.

ADMINISTRATIVE, TECHNICAL, AND GENERAL SERVICES (Continued)

The following Projects and Work Requests were authorized during the month:

Dana Plant

C-66-2 Return of DW Heated Water to Power Area Bldg. 902,
Part II - \$5,000 increase (total now \$19,600)

Savannah River Plant

S8-3-II Allocation of Funds for General Plant Projects from Aug. 1,
1955 to June 30, 1956, \$350,000 increase (total now \$550,000)

S8-1025-I Increased Throughput 200-F Area, \$7,000,000 (OME of total
cost \$21,000,000)

S8-1029 Crossfeed of Normal Lighting Power Supply 105-R, P, L Bldgs.,
\$28,000

S8-2028-2 Installation of Office Partitions in Wings "C" and "E-3"
Bldg. 703-A, \$1,600 reduction (total now \$4,750)

S8-3006 Installation and Removal of Office Partitions in Wing "E"
Bldg. 703-A, \$8,650

S8-3015 Alterations to Exclusion Area Fence, Bldg. 605-F, \$15,200

S8-3017 Maintenance Shop Facilities, Bldg. 677-G, \$6,600

S9-1014-2 Improved Can Assembly Machining Facilities, Bldg. 313-M,
\$38,750 reduction (Cancels Part 1)

S9-1030 Purchase Cryostat, Tech. Lab. Bldg. 773-A, \$31,000

S9-1032 Purchase of Additional Steel Drums, Bldg. 421-D, \$106,000

S9-3520 Monitoring Wells for Burying Ground, Bldg. 643-G, \$8,500

S9-3524 Reduce Vol. of Genl. Purpose Evaporator Wastes, Bldgs. 211,
F & H, \$17,600

S9-3527 Install Catch Tank, 221-F, B-Line, \$11,600

IRO-EC-2 Beta-Phase Heat Treating Facilities, Bldg. T-1001,
Part II \$24,600 increase (total now \$76,000)

IRO-X-15446 Temporary Facilities for Reactor Hydraulics Studies,
Bldg. 677-G, \$185,000

EWR 50036-II-Inspection of 100 Area Miscellaneous Materials, \$1,000
(total now \$2,000)

50140 Installation of Additional No. 1 Furnace in B-Line, \$5,000

50131 ESD Assistance, Bldg. 232-F, \$500

25792-II Flow and Temperature Monitoring, \$2,000 (total \$6,000)

50142 Inspection of Tubes for 100 Area Condensers, \$1,000

50076-II Mark V Autoclave Fixture, \$1,400 (total \$4,900)

50108-II Modification to Step-Press Die - SRL, \$2,500 (total \$7,000)

50136 SRL Engineering Assistance 1956, \$3,000

50068-II Stress corrosion of Steel in Waste Solutions, \$15,000

(Unnumbered) Attendance at the Oak Ridge School of Reactor Technology,
1956-1957, \$15,000

" Lubrication - 1956, \$3,000

" Waste Treatment Consultation, \$1,000

" Inspection of Bubble Cap Tray Assemblies, \$9,000

ADMINISTRATIVE, TECHNICAL, AND GENERAL SERVICES (Continued)100,600 and 900 AREA UTILITIES

Project S8-1035, Part I, "Increased River Water Flows, 600, 900 and 100 Areas", \$1,660,000, was approved and forwarded to the AEC for authorization. The OME of the total cost is \$3,260,000. This project will increase the capacity of the existing river water supply system to its optimum by the installation of two additional pumps in each of the two river pump houses and the installation of larger impellers in the sixteen existing pumps. This will provide 150,000 GPM water for the C and K Areas while maintaining existing flows to the R, P, and L Areas, or various alternate flows to the five areas, up to the maximum river water quantities available.

Engineering is preparing an OME for the installation of 50,000 GPM of cooling tower capacity in each of the 100 L, P and R Areas. In conjunction with the project for increased river water flows, these cooling towers could result in a cooling water supply of 150,000 GPM per area for all five 100 Areas.

As an alternate to cooling towers, Engineering is preparing an Evaluation Estimate for a cooling pond to cool the 100 R Area effluent and recirculate approximately 40,000 GPM to 100 R Area and 80,000 GPM to 100 P Area. To confirm the theoretical cooling pond performance characteristics which have been used for design purposes to date, Engineering is preparing an OME for a test facility utilizing two existing abandoned fishing ponds totaling approximately six acres in an area located approximately 4000 ft. west of 100 C Area. A portion of the effluent from 100 C Area would be pumped by the existing pump in Building 107-C through a temporary line to the ponds. It is proposed that this test facility will be operated by the Technical Division in order to furnish technical information needed for a large cooling pond design.

A summary report was prepared of the bearing difficulties which were experienced with the eight Elliott turbogenerators in the 100 Areas during 1954 and 1955, and the financial settlement which was offered by the vendor. This report was transmitted to the AEC for their concurrence.

The No. 7 pump in the 681-1G River Pump House was taken out of service on an emergency basis on February 29 due to sparking between the rotor and stator of its 3000 HP motor drive. Inspection disclosed that one of the laminated segments of the stator was dislocated. Engineering Department and vendor's representatives are participating in the investigation.

400 AREA UTILITIES

The No. 4 boiler in the 484-D Power House was taken out of service on an emergency basis on February 26 when a rupture occurred in one of its screen tubes in the upper portion of the furnace. The No. 2 boiler was taken out of service on an emergency basis on March 2 when several tubes from the steam drum to the mud drum were found to be leaking at a spot just above the middle baffle. Repairs on both boilers are in progress and investigation of the failures is being made by the Plant with the aid of vendor's representatives.