MONTHLY REPORT – PROCESS SECTION
MANUFACTURING DIVISION
APRIL 1956

MAY 15, 1956

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

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<td>1. R. P. Kelly - Dana</td>
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<td>2. H. O. Aaron - Engr.</td>
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POWER ASCENSION PROGRAM

1. Hollow Fuel Slugs

The core load of Mark VII slugs performed successfully in the R-10 cycle except for one slug that failed by penetration of the can at one end. This was a hot-press bonded slug that had been welded at the Savannah River Plant. After careful examination it was concluded that there was some non-bonded area to contribute to the failure but the primary cause was a cracked end cap which it is believed occurred during manufacture. The failure was detected by normal functioning of the flow and temperature monitoring systems. Additional measurements support previous findings that dimensional changes (diameter, length and warp) of the Sylvania hot-press bonded slugs have been somewhat greater than for SRP Al-Si bonded slugs, and both types show somewhat more increase than solid slugs. In a few cases the Sylvania slugs have not fallen freely from the quatrefoils during the dumping operation in the dis-assembly area, owing to slug warp and/or rough rib surfaces in the early Q-foils for these slugs.

R reactor has returned to the solid Mark I type of load, and L reactor now has a core load of Mark VII slugs to permit testing at higher power levels with the aid of the series heat exchanger installation in 105-L.

2. Series Heat Exchangers

The installation of additional heat exchangers in series with existing exchangers was completed in K and L Areas in April. Test results in K and P Areas show a reduction of about 5°C in moderator temperature. Results for L Area are not yet available.

Six larger impellers have been installed in Building 190-L pumps in order to increase cooling water flows to Building 105 to compensate for increased head loss through pairs of heat exchangers in series. Installation in other areas will follow.

3. Locating System for Fuel Ruptures

Indirect repair orders have been approved for construction of a 6-position laboratory model and a 25-position plant prototype of the proposed cyclone collection system for locating ruptures of natural fuel. The latter is to be installed experimentally in R reactor.
3. Locating System for Fuel Ruptures (Continued)

As a result of the SRL test program, the remaining design problems have been answered and procurement is under way for both units.

4. Increased Pressure of Blanket Gas

Detailed design and an Order-of-Magnitude estimate are essentially complete for facilities to apply 5 psig pressure to the blanket gas system and thereby raise the limitations on moderator temperatures. The major remaining problem is in the sealing of the plenum to the upper tank of the reactor.

The preferred design of plenum skirt seal employs a mechanical loading of the existing neoprene compound with a packing follower. However, other designs are under consideration, and final selection is contingent upon the outcome of proposed mock-up tests of fabrication techniques.

Two quotations have been received for solid zirconium thimbles for safety rods. These are in the range of $100,000 to $125,000 total for five reactors, exclusive of the zirconium cost which would add another $150,000 to $200,000. These thimbles may be considered justified over the use of aluminum thimbles on the basis of increased tritium production, assuming a completely satisfactory mechanical design is worked out.

5. Shipment of LMF Slugs to Arco

The four LMF shipping casks were completed in April and the first shipment to Arco has been made. Approximately six months will be required to complete the shipment of slugs now on hand at SRP.

PRODUCTIVITY IMPROVEMENT PROGRAM

1. New Fuel Element Studies

In continuing the development of extended surface fuel elements, a partial charge of approximately 42 Mark VI elements are scheduled to be made by late August 1956. Present indications are that they will be included in the K-13 cycle to permit evaluation before start-up of a full reactor charge in C reactor.

A Part I authorization request is being prepared to cover modifications and equipment in all reactor areas for processing of the New Fuel Elements. This request will cover construction of minimum facilities to prepare a first charge and the design and cost estimate of all other facilities.
1. New Fuel Element Studies (Continued)

A study has been made of the relative cost of shipping irradiated enriched fuel (Mark VI) to Arco in full lengths or in cut pieces together with costs of cutting at Arco or at SRP. The arrangement of the Arco dissolvers requires charging short lengths. Two cases have been considered: (a) a long-term program for shipping all future fuel from SRP and (b) a short-term case in which we would ship to Arco only until a recovery plant would be completed at SRP. Criticality calculations at SRL, subject to confirmation by future tests, had shown that at least 16 tubular elements per cask could be safely shipped in full length, but only 3.6 elements when reduced to 10-1/2 inch pieces capable of being dissolved at Arco.

Under case (a), investment and freight costs developed at SRP and at Arco were totaled to show approximately five million dollar savings during a five-year assumed period by shipping the long tubes to Arco and cutting there shortly before dissolving as compared with cutting at SRP. In the short-term case (b) where a recovery plant at SRP would be started up in late 1958, the costs were equal for the two methods. However, the problems of basin and cask contamination by corrosion of stored cut elements as well as the greater criticality problem in every handling of short elements favor cutting at the latest possible opportunity. For these reasons, the shipping from SRP to Arco in long form has been recommended to SROO, leading to plans for installation of cutting equipment by Arco and purchase of long casks by SRP.

In order to provide both SRP and Arco with information pertinent to the design of contamination control facilities, an irradiated Mark IV element, which is similar to the Mark VI, has been cut into one foot lengths in the R Area disassembly basin and stored in a covered bucket. Data regarding the release of activity and particulate contamination are being collected.

2. Increased Moderator Circulation

Project S8-1037 Part I was authorized on April 6, 1956, covering purchase of major equipment and design of increased moderator circulation facilities for R, P, L and K Areas. This authorization parallels the previous authorization of Project S8-1022 covering similar facilities in Building 105-C. In connection with this latter project, welding of the two half castings of the first of the large moderator circulating pumps has been started at Bingham Pump Co. X-ray and repair welding on these castings has been completed and is being done on subsequent castings for other pumps.
PRODUCTIVITY IMPROVEMENT PROGRAM (Continued)

2. Increased Moderator Circulation (Continued)

Running rests are being conducted on pump bearings. The first set of shaft seals has been shipped from a Chicago vendor and these seals will be placed in test as soon as received. This will insure that seals and bearings will have had preliminary tests completed before final assembly and testing of the first pump is undertaken. "p" Work Order No. 1 on Project S8-1022 was authorized to permit purchase of long-term-delivery tooling and to start fabrication of large stainless steel piping. A construction cost estimate has been completed to permit preparation of a Part II request on this project for completion of the pump installation in Building 105-C.

A cover casting being produced for the first of the gear reducers to drive the large pumps was found to be faulty when machined. This has delayed the efficiency testing of this gear until about May 14 and will delay shipment to about May 19.

Discussions are under way with Bingham Pump Co. to work out final details of the hydraulic testing of the pumps. A 3400 HP drive motor from SRP is at the vendor's plant and other test facilities are being prepared. Suction conditions at the Plant will be simulated both as to pressure and physical arrangement.

REACTOR DESIGN STUDY

1. Building 105 Arrangement

A new building arrangement for housing twin reactors has been developed to utilize two charge and discharge machines per reactor. Consideration of the operating cycles for these machines had led to the decision not to attempt to discharge and charge each reactor with only one machine without basic changes in the operation of the machines. Such changes will be considered in connection with the more complete redesign of the reactor planned for the next phase of this study.

2. Assembly and Disassembly Areas

The assembly area of the twin reactor building has been designed to serve both reactors with essentially the same type of equipment proposed for handling new fuel elements in existing areas. The only major change is in the two final storage areas for assembled fuel elements, where the elements will be stored on racks by a stacking machine.

The charge and discharge machines will be designed with dual "A" masts to handle two elements at one time whenever possible, and other mechanical improvements will show in the design.
2. Assembly and Disassembly Areas (Continued)

The disassembly area is designed to include a discharge and exit conveyor able to handle two elements. No "dry cave" has been included, since control rods could be disassembled under water and target tubes could be shipped whole to the 232 buildings. Mechanical improvements are incorporated into the various equipment designs.
SAVANNAH RIVER PLANT
SEPARATIONS PLANTS - 200 AREA

SEPARATIONS PLANTS

1. **221-H Solvent Recovery - Canyon Pumps**

   The first two of twelve pumps ordered for the 221-H continuous solvent washing systems have been delivered. Performance tests on the first pump at the vendor's indicates satisfactory capacity and vibration characteristics. One pump will be installed at TNX for extensive pump testing and for testing flow control systems based upon pump speed variation. Various means of priming the pump for high suction lifts will also be evaluated.

   In addition, the Design Division has been requested to install one of the extra machinery pumps for the solvent system in the 221-H 1D mixer-settler feed system using a Hanford type canyon rotameter and control valve for flow regulation. Such a system eliminates the use of the "Hackman Hat" with attendant simplification of the instrument loop and an increase in flexibility due to the increased maximum to minimum flow range of the rotameter-control valve assembly.

**A-Line**

**Bulk Handling of Oxide (S8-1021) and Other Oxide Handling Equipment Additions ("P" Work Order 6019)**

The forecast completion date for the bulk handling project has been adjusted from May 1 to about the middle of May. The part of the job involving an A-Line shutdown has been completed without causing lost time in the canyons. A new screw conveyor, pulverizer and feed hopper were installed. The remainder of the work is proceeding with minor delays.

**Waste Disposal**

1. **241-H Waste Pumps**

   Engineering Department tests of the first 241-H waste pump have been completed, and it has been installed at TNX for extensive running tests. The impeller diameter has been reduced but the pump still has a capacity in excess of that required, causing a motor load larger than the desired 50% of rating. A new impeller may be required but the effect of throttling orifices will be tested first.
2. **241-F - Additional Low Level Waste Storage (S8-1030)**

The Part I project papers have been approved. New quotations for steel tank fabrication and erection have been requested and received since the time limit on the original quotations had elapsed prior to project approval. A project analysis is being prepared based on the latest available information and a construction cost estimate is being made.

3. **241-F - In-Tank Evaporator for New Low Level Waste Storage**

A favorable quotation has been received from the Griscom-Russell Company for a package waste evaporator rated at 4,500,000 BTU/hr which is suitable for in-tank mounting. This unit is attractive enough that it is being considered for installation in each of the new low level waste tanks. Feed for these evaporators would come directly from the existing tank farm and consist of either low level waste or decayed high level waste. A prototype unit at Griscom-Russell has satisfactorily demonstrated solids concentration from 35 to 70%.

Engineering has been requested to determine if the evaporator could be supported without major design changes to the domes of the new tanks and, if feasible, to evaluate installation costs.

4. **242-F - External Waste Evaporator**

Atomic Energy Commission approval of the Part I project has been received. Design, procurement, and construction for this project are being held, however, for the following reasons:

a. Successful operation of the Griscom-Russell unit makes it desirable to reappraise the subject of tank farm evaporation.

b. There is reduced urgency for waste evaporation to provide more waste storage space because high activity waste acid recovery has reduced unit waste volumes and the forecast canyon processing load has been reduced. This probably will permit plant evaluation of the Griscom-Russell evaporator before it is necessary to start construction on a central evaporator facility.

c. Limited Design personnel makes it desirable to give priority to other projects.
WASTE DISPOSAL (Continued)

5. 241-F and H - Heat Load Evaluation

The Engineering Department has made a study of the adequacy of the cooling system in each waste tank farm under predicted future conditions of operation.

The tentative recommendations are that a 50% increase in cooling water flow may be desirable to adequately cool a tank partially filled with fresh waste. The installation of an additional pump is indicated. Pipe line sizes will be reviewed to determine whether they are adequate for the increased flow.

TRITIUM SEPARATION

1. 232-H Rehabilitation

Investigations have revealed that the development of a booster pump is practical to increase the pumping speed of the diffusion pump - Sprengel pump combination. By locating the second line FY hood in the basement of the first line, space is being provided to permit the ultimate installation of three booster pumps. One pump will be required in the furnace extraction pumping system to attain the design capacity of the line. Space for future installation of the other two is being provided to double diffuser capacity when the current furnace capacity "bottleneck" is eliminated.

Experience in 232-F has indicated the need for personnel to enter the materials handling room at least once per shift. The original "H" design provided remote operation of the equipment in the room with indicating lights giving the position of the equipment; no visibility was provided. A window is being inserted in the wall between the operating console and the materials handling room, two air-lock walls are being removed and mirrors are being provided to provide visibility and increased safety. A second manually operated escape door also will be provided.

2. 232-H - Second Line

Plans for the second process line in H are being based upon a capacity sufficient to handle any reasonable steady-state production on one line and the necessity for ultimately processing Mark VI-A tubular targets. Primary separation by either diffusers or uranium bed sorbers is being investigated. Extraction schemes involving melting either full length or cut targets are being evaluated.
TRITIUM SEPARATION

3. Julep

Construction of the building was started the week of April 16, and building design is virtually complete.

Facilities are being provided at the Mechanical Development Laboratory for testing the compressor, valves, line closures and capsule closures. These facilities include a barricaded area, a hand operated intensifier to supply gas at high pressure, and a mass spectrometer for leak detection. Design of the oil-actuated mercury compressor is complete, and the drive mechanism has been fabricated. Fabrication of the compressor is scheduled to be complete about June 25. The final stage of the diaphragm compressor, being fabricated by Pressure Products Company, will be ready for test about May 21.

Firm design is under way on all major pieces of equipment, such as tanks, process hoods and testing facilities.

INCREASED CAPACITY

1. 221-F and Related Facilities

All canyon and 211 Area flow sheets have been brought up to date and approved by AED. Process piping and instrument diagrams are being received and approved on schedule.

A more extensive study of the canyon jumpers has been made by the Plant Liaison Group in an attempt to reuse as many as possible of the existing jumpers and to avoid relocation of gang valves. Approximately fifty existing jumpers, which would otherwise have been replaced, have been saved for future use by this study. The Design Division is to re-survey the remainder of the tank and rack jumpers to assure that as many as practical be reused without resorting to unorthodox piping. About eighty rack jumpers have been released for construction.

Purchase orders will be issued for all new major canyon equipment in the near future.

Arrangement drawings and process piping diagrams have been prepared for the new segregated solvent area and cold feed preparation buildings. These areas are being expedited to make them available before the canyon shutdown. A preliminary procedure for the step-wise removal of equipment and operations from the existing cold feed prep to the two new areas has been given the Engineering Department; a considerable number of details still require resolution.

The plant is investigating possible reuse of connector parts from discarded jumpers. This would result in an appreciable savings if an easy method can be developed for reinstalling them on the new jumpers.
2. B-Line

Agreements have been reached on the arrangement of the precipitation and mechanical line equipment on the fifth level. The mechanical line design will be based on having maintenance access from the west side and operating from the east side, with the two sides divided into separate rooms. The maintenance side will be further divided into small rooms to minimize the spread of contamination. Major equipment would be located in cabinets branching off the main north-south conveyor cabinet to the west, or maintenance side. Boats and crucibles would be moved from the main conveyor cabinet to the branch cabinets by overhead conveyors. Storage areas would be provided in branch cabinets east of the main operating cabinet. Mechanisms will be kept simple and will be manually operated wherever possible.

The evaluation estimate based on the trifluoride process has been completed, and reflects all major changes in the scope of work.

"25" RECOVERY PLANT

The Engineering Department is writing a detail scope of work for use in preparing an evaluation estimate based upon the following assumptions:

1. The building will be located about 400 feet northeast of Building 221-H such as to avoid interference with any future canyon expansion.

2. The cell and vent system exhaust air will be connected to the existing exhaust air tunnels at the north end of the 221 Building. This will permit use of the present fan house, sand filter and stack.

3. The following services for the new building will be supplied from the 221 Building:
   a. Refrigeration
   b. Plant and Instrument Air
   c. Emergency Electric Power

The flow sheet for the "25" process has been modified to include a "head end" operation to assure the required decontamination. The waste evaporators previously contemplated have been removed from the process on the basis that the waste volume reduction which they achieved was relatively low, total waste volumes are low, and the tank farm evaporator will be able to provide the equivalent concentration after the wastes are cooled sufficiently.
INCREASED PRODUCTIVITY PROGRAM

1. Extended Surface Enriched Elements - Mark VI Program

All Du Pont approvals have been obtained on a Part I Appropriation Request for $5,000,000 covering design, preliminary procurement and initial construction of new facilities in the 300-M Area for production of Mark VI fuel and target elements. The project is currently awaiting AEC authorization. AEC has agreed to commitment of $600,000 for structural steel and process equipment in advance of project authorization to permit immediate placement of orders on items most urgently needed for interim production of enriched fuel and target components.

a. Fuel Facility - Building 321-M

An advance structural steel order, including material for Building 321, has been placed with Carolina Iron and Steel. Delivery of this portion of the order has been promised by January 1957.

SRP has issued an order to Ajax for one air melting furnace, complete with power supply, for casting of enriched billets for the interim production program. The furnace unit will ultimately be installed in Building 321 when this facility is completed.

Preliminary Extrusion Press quotations from Lake Erie, Watson-Stillman and Hydropress have been discussed in detail by AED and Engineering with each of these vendors. All three were requested to submit revised quotations incorporating minor changes and additional alternates before a final selection is made. All of the revised quotations are due in by the end of the first week in May and it is anticipated that a final decision will be reached the following week.

Engineering efforts are currently being concentrated on review of quotations, vendor selection and DQ sheet prepa-
ration to enable prompt placement of orders on all limiting equipment as soon as project authorization is obtained.

Final issue of a review of security and accountability con-
cepts embodied in the design of Building 321-M has been deferred pending clarification of requirements for controlling access to outside storage areas.
1. Extended Surface Enriched Elements - Mark VI Program (Cont'd.)

b. Target Facility - Building 320-M

The advance structural steel order placed with Carolina Iron and Steel also includes material for extension of the vacuum furnace area in Building 320. An advance order for the second vacuum melting furnace has been placed with National Research and preliminary quotations from three vendors on vacuum outgassing equipment have been reviewed. The necessity for obtaining revised quotations on the outgassing equipment has delayed placement of this order; however, the delay does not result in a delivery date incompatible with the vacuum furnace availability.

Engineering has prepared several equipment arrangement studies of the furnace room extension. These have been reviewed and tentative agreement reached on desired location and orientation of new equipment in this area.

2. Extended Surface Natural Uranium Elements

At present, the over-all program for fuel elements indicates that there will not be a need for natural uranium extended fuel elements until early 1959. As a result the Part I for the Mark III - step pressing facility will not be presented at this time.

The Engineering Department has been requested to expand their study of the Mark III facility to include the following:

a. A facility for extended surface elements based primarily on the step press process, but possessing sufficient flexibility to allow changeover to one of the processes now under consideration with the minimum time and expense. The alternate processes are extrusion cladding and pneumatic pressing for both Mark III and Mark V fuel elements.

b. An optimum facility based on only extrusion cladding of Mark III and Mark V.

c. A review of space requirements for handling long elements. Initial layout of Building 314-M appeared to have excessive handling space.

The Technical Division is proceeding with development of the extrusion cladding process for Mark III elements. As a part of this program it is planned to make minor modifications to the extrusion press in Building 320-M to handle some experimental extrusion cladding of plates. This change will have no effect on normal production and should be complete in June 1956.
The Engineering Department is preparing an Order-of-Magnitude Estimate to cover alterations to SRL Fabrication Laboratory to house an experimental extrusion cladding press and auxiliaries to internally and externally clad Mark V elements in the vertical position. This press will also be capable of cladding Mark III elements. An Indirect Repair Order, based on an evaluation estimate, will be prepared to cover the purchase and installation of the press. A project based on an Order-of-Magnitude Estimate will be prepared for the "pent house" building addition required. The goal date for completion is August 1, 1956.

A review of the latest data on fluid bonding in the interim autoclave has indicated that the studies of prototype autoclave designs being conducted by the Engineering Department should be continued. The Technical Division will carry out any tests necessary to evaluate the validity of design assumptions.

**GENERAL**

1. **Vertical Salt Bath Installation - Building T-1001**

All major equipment is now on hand at SRF. Fabrication of the hoist is in progress and present estimates indicate that Construction will complete the installation by June 1.
HEAVY WATER

DANA PLANT

1. Hydrostatic Test Program

Hydrostatic testing and inspection of Unit 204 was completed during April. Unit 205, which is currently down, will be complete during the first week in May and Unit 201 is scheduled to come down for test during the second week in May.

2. Extraction Area Tray Replacements

It is anticipated that a sufficient number of Type 304 SS bubble cap tray assemblies will have been received from F. W. Glitsch by the end of the first week in May to satisfy replacement requirements for Unit 201. Caps attached to the new tray assemblies being supplied by Glitsch are held in place with a single hold down nut. A second jam nut will be added at Dana before the trays are installed. Dana currently has a stock of 171,000 Type 410 SS nuts on hand which should be adequate to supply jam nuts for that portion of the Glitsch order scheduled for delivery this year.

It is anticipated that Glitsch will complete fabrication of experimental sieve trays for one pair of towers, as well as bubble trays for the remaining towers, in time for installation in Unit 202 during June.

GENERAL

1. Heavy Water Container Procurement

To date U. S. Steel has fabricated and shipped two thirds of the current order for 1500, 55-gallon stainless steel storage drums. The remaining 500 drums are scheduled for shipment during the second week in May.

Information on approximate price and delivery of a 15-gallon Type 304 SS drum, suitable for small lot domestic distribution of heavy water, has been obtained from the Heintz Manufacturing Company. In lots of 10 and 1000 these drums would cost in the order of $28.00 and $26.00 each, respectively. Pertinent data concerning the Heintz "Chem-I-Kegs" have been forwarded to Dana and to the Savannah Operations Office.
SAVANNAH RIVER PLANT
UTILITIES AND GENERAL SERVICES

ADMINISTRATIVE, TECHNICAL, AND GENERAL SERVICES

The erection of the structural steel framework has been completed for the Engineering Assistance Facility, Building 723-A. In addition, the installation of roof and siding is near completion. Equipment arrangement drawings have been approved and agreement has been reached with Engineering relative to the heating, ventilating and air conditioning schemes and process sewer layout.

The Order-of-Magnitude Estimate for the High Level Caves addition to the Technical Laboratory, Building 773-A, has been received from the Engineering Department and is currently under review. Agreement has now been reached on all major design details. Arrangement of the Caves' operating face and method of ventilation was approved. A review of breathing air requirements for the new and existing caves disclosed an anticipated demand sufficiently large to justify a separate compressor and design is proceeding on that basis.

Drafts of the 65,000 KW Power Contract, having an effective goal date of July 1, 1956 and containing final modification details suggested by the Utility and AED, have been sent to the AEC for their concurrence. Signature agreement is necessary by June 1, 1956, to conform with the Utility's proposal.

The Engineering Department has completed their study of the Purchased Power 115 KV electrical transmission system with its relation to the Savannah River Plant System and the South Carolina Electric & Gas System. The results of the study demonstrate the need for installing one new 795,000 C.M. line from Urquhart Station to the Savannah River Plant, the strengthening of the present purchased power 397,500 C.M. line to 795,000 C.M., and the installation of auto transformers at the Urquhart Station. This will provide the proper transmission system quality for the increased electrical loads related to the Productivity Improvement Program.

The following projects and work requests were approved and/or authorized:

**Savannah River Plant**

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<td>S8-1019-2</td>
<td>Instrument Access Platforms, Bldgs. 411, 412 and 413-D, $14,100 reduction - total parts I-II $28,700</td>
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<tr>
<td>S8-1030-1</td>
<td>Additional Waste Storage Tanks, 200-F Area, $960,000</td>
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</tr>
<tr>
<td>S8-1031-1</td>
<td>External Waste Evaporation Facilities, Bldg. 242-F, $320,000 - OME $740,000</td>
<td></td>
</tr>
<tr>
<td>S8-1033-2</td>
<td>Install Heat Exchangers, Bldgs. 105- R, P, L, and K, $400,000 increase. Total Parts I-II $700,000</td>
<td></td>
</tr>
<tr>
<td>S8-1035-1</td>
<td>Increased River Water Flows 600, 900 and 100 Areas, $1,660,000 - OME $3,260,000</td>
<td></td>
</tr>
</tbody>
</table>
Savannah River Plant (Continued)

Project S8-1036 Rehabilitation of Bldg. 232-H, $4,800,000
S8-1037 Increased Moderator Flow, R, P, L, and K Areas, $6,300,000
S8-1040 Additional Process Facilities, 200-H Area, $3,300,000
S8-3020 Sampling System for Seepage Basins, Bldgs. 904-12 and 13-G, $17,100
S9-1038 Mass Spectrometer for Bldg. 677-G, $26,000
S9-3520 Replacement of Mowing Equipment, 615-G, $12,800
S9-3530 Replace Well Pump 905-39F, $7,200
S9-3531 Product Container Degassing and Calibration Facilities, Bldg. 232-F, $5,700

Dana Plant  - None

Savannah River Plant

E.W.R. 25844-III Prototype Autoclave - $14,000 increase. Total Parts I-III $30,000
50020-III Evaluate Waste Concentration Alternatives - $20,000 increase. Total Parts I-III $60,000
50024-II Install Beta Phase Heat Treating Furnace T-1001 - $24,000 increase. Total Parts I-II $76,000
50042-II Shielding Warm Canyon Crane 221-H Bldg. - $3,000 increase. Total Parts I-II $5,000
50080-IV Extrusion Design - $10,000 increase. Total Parts I-IV $23,000
50110-II Additional High Level Cave Facilities - $25,000 increase. Total Parts I-II $75,000
50122-II Design Assistance to AED Project Department - $25,000 increase. Total Parts I-II $50,000
50124-II NFE (LMT) Mfg. Facilities - $25,000 increase. Total Parts I-II $50,000
50175 ESD Assistance Bldgs. 211-F, 221-F, 221-F "A" Line, 222-F - $5,000
50176 Bldg. 234-H Special Equipment - $10,000
50177 Bldg. 234-H 200 Area - H.P. Valves and Fittings, $10,000
50178 NFE (LM) Casting Fixture - $4,000
50180 Hydraulic Test Prototype of Slug Rupture Location Device - $3,000
50181 NFE (LMT) Tooling - 320-M - $5,000
50182 Double Acting Press 320-M - $6,000
50183 Volume Reduction Type I Waste by Evaporator Installed in the Storage Tank - $9,000
50184 Extrusion Semi-Works - Bldg. 773-A - $5,000
50185 Separators for Off-Gas Piping 221-F "A" Line - $3,000
100, 600 and 900 AREA UTILITIES

Modification of an abandoned pond adjacent to the 100-C Area will provide a six-acre cooling water test pond from which data will be obtained relative to evaporative cooling performance under various conditions of operation. Information obtained from the test pond will be of value in scaling up predicted performance of the 1400-acre cooling water pond currently under consideration as a new source of cooling water. This could supplement the River Water System as needed to complete the five 100 Area requirements related to the Productivity Improvement Program.

Previous external inspections of the sixteen 3000 HP motors in the 681-LG and 3g River Pump Houses disclosed loose and irregular laminations of the stator core. Internal inspections have now been made to eight of the motors, disclosing excessive eccentricity of the stator core in five of the units, necessitating restacking of the stator with new laminations and the installation of new coils. The other three motors will require tightening of the stator only. One of the motors is currently being repaired at the vendor's shops and it is planned to consecutively return the remaining fifteen motors to the vendor for repairs as cooling water demands permit. The predicted October delivery of the five new motors ordered in connection with the Productivity Improvement Program will facilitate the repair schedule of the presently installed motors.

The vendor has assumed responsibility for the repairs and will absorb the expenses with the exception of procurement of new motor coils.

External and internal inspection of the Ellenton raw water header was made April 24, 1956, by representatives of AED, the Engineering Department, and the Lock Joint Company, who manufactured the concrete pipe. The inspection was made to determine the severity of water hammer effect to the header during start-up and preliminary operation of the water supply system. Small longitudinal cracks were found internally at the four plate reducers. The cracking was not considered serious but indicated that at some time during the system water hammer tests the design pressure had been exceeded. External inspection was made to one of the header's 48-inch cross connecting lines which are considered the focal points of high pressure surges. The inspection revealed no evidence of cracking confirming that no damage had been caused to the header.