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Monthly Report

GENERAL ELECTRIC COMPANY

Fuels Preparation Department

AUGUST 1957

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HW-52300

This document consists of 46 pages, copy No. [redacted] of 26 copies. Series A.

MONTHLY REPORT

FUELS PREPARATION DEPARTMENT

FOR

AUGUST, 1957

66921

Compiled by

Fuels Preparation Department

September 16, 1957

Richland, Washington

Work performed under contract No. W-31-109-Eng-52 between the Atomic Energy Commission and General Electric Company.

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TABLE OF CONTENTS

FUELS PREPARATION DEPARTMENT
MONTHLY REPORT SUMMARY FOR
AUGUST, 1957

MANUFACTURING OPERATION

Six hundred seventy-nine (679) tons of acceptable uranium fuel elements were produced which was 108 percent of forecasted production.

A new record in total production was established.

The manufacturing yield for I & E fuel elements was 65.2 in August as compared to 40.5 in July.

During August the operating efficiency was 91 percent which was 2 percent better than the July experience.

The autoclave cycle for solid fuel elements canned in 1245 components was reduced from 40 to 20 hours.

An I & E cap failed during the autoclave process on August 22, 1957.

ENGINEERING OPERATION

Thirty-three ruptures occurred during the month in normal uranium, solid fuel elements. Eleven were classified as core splits, eight as side hot spot failures, five were unclassified and nine await examination at the time of writing. Eighteen of these failures were in the KE Reactor with a high incidence of core splits. These were not unexpected since power levels were approaching the point where previous experience had indicated that the solid uranium element fails by core splitting. The significant factor that can be learned from this month's rupture experience is that, as predicted, solid fuel elements fail with increasing frequency as core temperatures approach the alpha-beta phase transformation temperature.

Irradiation of I & E elements continued without incident. Three tubes of enriched (1.44 U-235) I & E elements undergoing irradiation in C Reactor at maximum specific tube power of 90-95 KW/ft have reached exposures of 1775 MWD/T without failure. Ruptures were incurred in the solid (enriched) control pieces at 1000-1200 MWD/T. Full utilization of I & E elements in C Reactor should be achieved over the next 3-4 months. Yields of I & E elements reached a high of 71% during August in the pilot plant and 60-65% in the 313 Building production facility. Improvements of testing equipment to isolate the "true penetration" should reduce the reject rate for this category and significantly improve the over-all yield rate for I & E elements. Significant improvements during August in internal penetration rejects resulted from the elimination of spire wrinkles by improved canning techniques.

Irradiation of about 4500 fuel elements jacketed in M-388 Ni-Al alloy continued without incident. General corrosion resistance appears to be equal to 1245 alloy. Semi-production loadings (170 tons/mo.) of solid and cored M-388 jacketed elements will start in September. It is expected that the use of M-388 alloy jackets will be standard after about one month's canning experience to further explore and standardize canning variables.

ENGINEERING OPERATION - continued

Additional improvement in rupture experience of solid elements may be achieved by use of the purer metal as produced by the Mallinckrodt dingot process. Irradiation tests are underway to further evaluate the dingot metal. Run-to-rupture tests have been scheduled with the Irradiation Processing Department to determine rupturability data in comparison to standard metal.

Two full length columns of 1.8 IPR size M-388 clad, cored elements are scheduled for charging late in September in the K through holes. This test is designed to evaluate core stability and to optimize core ID. KER Loops #2 and #4 were each charged with ten IPR size M-388 self supporting I & E elements. Adjustment of recirculating water to pH 4.2 - 4.8 and maximum outlet temperature of 180 and 200°C has been effected as part of test requirements. These tests are continuing. KER Loop #3 is scheduled for charging with 4-element stainless steel clad clusters during September.

Investigations are being continued with centrifugally cast elements which include certain "additive elements". These additives are being studied in relation to their grain refining characteristics for metal improvement. Tests are continuing.

Evaluation of elements extrusion clad by the General Cable Company continued. Considerable effort is being devoted to production of satisfactory fusion welded end closures.

EMPLOYEE RELATIONS

The third PBM-I series to be held during 1957 was begun during the month with 16 participants.

Two Department employees participated in a PMS & L training course for leaders presented by W.A. Ingram of the Sales Analysis Institute.

There were five exempt positions audited during August. This program continues to be maintained in advance of schedule at a rate of 150% of the two-year goal. Audits of non-exempt non-unit positions within Manufacturing involved considerable rewriting of job descriptions and some re-evaluation; however, this program continues on schedule.

Fifteen grievances were processed during the month. Of the grievances received, 13 involved jurisdiction and two were regarding overtime. Six of the jurisdictional grievances related to maintenance versus construction and the crafts involved were: pipefitter, millwright, boilermaker, electrician, carpenter and sheetmetal. Step II discussions were scheduled concerning these grievances for August 23; however, at the request of the Union, they were postponed until September 4.

The Department continued to operate without a disabling injury. There were no serious accidents during the month. The medical treatment frequency rate increased from 3.44 in July to 3.84 in August. There were three minor fires with no resultant loss. Plans for Fire Prevention Month (October) were formulated.

No security violations occurred during the month.

FINANCIAL OPERATION

Audit schedule for year ending July 31, 1958 was completed and forwarded to the Commission. Effort will be concentrated during the year on improvements through simplification and cost reductions.

Directive No. HW-428, Modification No. 1, was received from AEC on August 29, 1957. This authorized costs in the amount of $368,000 for Project CG-713 - Conversion to I & E Lead Dip Fuel Elements. Funding is from the Plant Acquisition and Construction Budget Item 2-23X-5013. Preliminary design is now essentially complete. All other design and project work is proceeding on schedule and within costs.

PERSONNEL STATISTICS:

Number of employees July 31, 1957 795
Number of employees August 31, 1957 791

OPERATION	EXEMPT	NON-EXEMPT	TOTAL
General	1	1	2
Manufacturing	69	307	376
Maintenance and Power	40	234	274
Engineering	43	27	70
Financial	16	23	39
Employee Relations	16	14	30
TOTAL	185	606	791

WM Mathis:es

WM Mathis

[redacted]

MANUFACTURING OPERATION

August, 1957

I. CURRENT OPERATIONS

A. Production and Productivity

1. Statistics

Current Month's Production	8" Solid	8" Depleted	8" Cored	Enriched	I & E	Total
Acceptable Fuel Elements Produced(Tons)	637	-	-	7	34	679
As % of Forecast Production	116	-	-	30	85	108
As % of Past 3 Months' Production Average	135	-	-	70	213	129
As % of Past 12 Months' Production Average	145	-	-	175	340	139
As % of June, 1957 Goal						100
As % of June, 1958 Goal (500 MWD/Ton)	232	-	-	18	17	101
As % of June, 1958 Goal (750 MWD/Ton)	637	-	-	28	12	151
% of Forecast Achieved - Last Fiscal Quarter	100	13	81	79	39	93
% of Forecast Achieved - Last 4 Fiscal Quarters	105	36	85	70	42	100
Production Adjusted for In-Process Inventory						705
Operating Efficiency						
Current Month (%)						91
Forecast (%)						89
Previous Month (%)						89
Manufacturing Yield						
Current Month (%)	82	-	-	83	65	
Forecast (%)	81	-	78	83	45	
Previous Month (%)	82	80	-	82	41	
Bare Uranium in Storage (Tons)						440*
Canned Uranium in Storage (Tons)						710
Uranium Utilization (%)						95
Special Products Canned						None
Special Products Finished						None

* Does not include two cars received at month's end but not unloaded into storage.

[redacted]

2. Activities

a. Production

During the month the Manufacturing Operation worked on a two-shift basis with five canning lines on each shift. Six hundred seventy-nine (679) tons of acceptable uranium fuel elements were produced which was 108 percent of the six hundred thirty-one (631) tons forecast in HW-51698-RD. Variance from forecast resulted primarily from the operating efficiency and yields which were above forecast, and from changes in product mix.

A new record production output was established by the Manufacturing Operation in August. The total tonnage output was 17 percent higher than the previous record established in July, 1957.

A comparison of manpower and production output for September 1956 with that for August 1957 shows marked improvement in manufacturing productivity. In August the total employees of the Manufacturing Operation was 12 percent higher than in September 1956 while the pieces output per working day was 50 percent higher than in September 1956.

b. Manufacturing Yield - Solid Production

The manufacturing yield for solid fuel element production was 82.4 percent compared to 82.2 percent for July. All solid fuel elements were canned in 1245 components.

In August the miscellaneous reject rate increased to 3.4 percent from 2.6 percent for the previous month. Primarily, the increase was due to caustic pitting and AlSi chips resulting from sleeve cleaning process difficulties.

The August canning reject rate continued its downward trend and was recorded at 1.0 percent as compared to 1.4 percent in July.

The inclusion reject rate was 3.7 percent as compared to 4.3 percent in July.

The bond test reject rate increased to 1.8 percent from 1.0 in July. This increase was attributed to porosity in the braze layer which has been correlated to higher hydroxyl content in the Fernald salt bath.

The bad weld reject rate decreased from 1.5 percent to 1.1 percent in August. A full-scale comparison test revealed that the double-weld pass technique has a slightly lower reject rate than does the preheat-single weld pass technique. Plans call for inclusion of the double-weld pass technique in the Process Standards.

In August the marred surface rate was 2.3 percent as compared to 2.6 percent in July. Poor bond, thin wall, and void reject rates varied little from the July experience.

c. Manufacturing Yield - Cored Production

No cored fuel elements were manufactured during August.

d. Manufacturing Yield - I & E Production

Application of new knowledge and techniques gained from extensive I & E process tests plus better control of canning and finishing variables continued to improve the I & E production performance. In August the I & E yield was 65.2 percent as compared to 40.5 percent in July. Improvements were noted in all reject categories except external thin wall and length reject categories.

In July a portion of the I & E production was sent to Reprocess Storage. These fuel elements were reprocessed during August and many met the acceptance standards. The influx of this salvage material caused the August yield to be six percent higher than the average yield of lots which were canned and completed during August. A study is underway to determine how to reduce this kind of yield fluctuation which results from return of salvaged material to the manufacturing process.

Most of the I & E fuel elements were canned in M-388 (1% Ni) components.

e. Manufacturing Yield - Enriched Products

The manufacturing yield for enriched fuel elements was 83.0 percent compared to 82.4 percent in July. Bad weld, poor bond, marred surface, and miscellaneous reject rates were lower than the July experience while bond test and inclusion reject rates were higher.

A small lot of 6-inch enriched uranium I & E fuel elements is being processed through the plant. No yield data are available because the material will not reach finished storage until the first part of September.

f. Other Activities

At month's end there was a 0.7 month supply of bare uranium in storage which is above optimum level. The extra metal was provided as a contingency during labor negotiations at National Lead this fall. A 0.9 month supply of finished fuel elements was available in the combined 100-300 storage areas as compared to 0.8 month supply for July.

The following pieces were processed through the fuel element recovery operation:

	Pieces
8" Solid	35,586
8" I & E	10,059
6" Enriched	1,022
Total	46,667

One shipment totaling 56,525 pounds of solid uranium scrap was shipped to the National Lead Company during the month.

B. Plant Problems and Incidents

1. General

During August the operating efficiency was 91 percent, which was 2 percent better than the July experience. Equipment outages caused 58 percent of the lost time. Operational and process outages accounted for the balance.

2. Canning Furnace Repair

During July one of the canning furnaces failed. It was removed from the line for repairs and was replaced by one from the recovery area. Repair work has been completed and the furnace has been installed in the recovery area.

3. Cap and Can Cleaning Machines

Lost production due to operational and quality difficulties with the cap and can cleaning machines was the lowest since January. This improvement resulted from machine overhaul, degreaser modifications, and machine design changes.

4. Cast Canning Baskets

Tests indicate that cast canning baskets have a twenty (20) percent longer service life than fabricated canning baskets. By strengthening one point in the cast basket design an additional ten (10) percent increase in service life is expected. In view of these findings, canning and duplex baskets will be cast rather than fabricated in the future.

5. Autoclaves Capacity

When compared to September 1956, the total pieces output per working day in August has increased by 50 percent. Consequently the maximum throughput capacity of some equipment is being approached. As a further complicating factor, the plant is handling increasing quantities of 0.94 percent enriched material. The Nuclear Safety Rules for 0.94 percent enriched material reduces the throughput capacity of the autoclaves. These two factors combined to cause a production bottleneck in August. Between 25 and 30 tons of fuel elements had to be palletized while awaiting the autoclave process.

This problem was alleviated when the autoclave cycle for solid fuel elements canned in 1245 components was reduced from 40 to 20 hours with the concurrence of Irradiation Processing Department. No change has been made in the autoclave cycle for other products. However, reduced autoclave cycles for all products are under study.

6. Delivery of Aluminum Caps and Cans

During July and August the delivery of both 6-inch and 8-inch I & E components has been running 30 - 60 days behind schedule because of temporary fabricating problems at Alcoa. This caused a production schedule change during August, from I & E to solid fuel element manufacture. Consequently, the delay in

6. Delivery of Aluminum Caps and Cans - continued

deliveries and the production rescheduling have resulted in low inventories of both solid and I & E caps and cans. Manufacturing Operation representatives visited the Alcoa plant at Edgewater, New Jersey to discuss this problem. By mid-November inventories are expected to return to normal.

7. Autoclave Failure

An I & E cap failed during the autoclave process on August 22, 1957.

C. Operating Plans

1. Bare Uranium Quality

Bare metal quality reject rates for seams and striations remained about the same as in July, except for recovered cores which increased from 19.3 percent in July to 25.7 percent in August. Plans call for studying the recovery process to determine the factors which are contributing to this increase.

2. Product Mix

Equipment throughput capacity currently limits the manufacture of I & E fuel elements to one canning line per shift. Plans call for the installation of additional equipment to increase the I & E fuel element throughput to two canning lines per shift in October.

3. Equipment Removal

The production forecast calls for the manufacture of lithium-aluminum alloy fuel elements starting in October. This work will be done in the special canning room.

D. Employee Relations

Members of the Operation were treated for 22 minor injuries for a frequency rate of 3.68.

Frequency of exposures greater than 200 mrads per two-week badge period was one (1). The frequency of exposures greater than 100 mrads per two-week badge period was twenty-two (22).

No security violations were reported.

II. PERSONNEL MATTERS

A. Visits and Visitors

H.E. Berg and J.E. Bergman visited the Alcoa Plant at Edgewater, New Jersey to discuss delivery of aluminum components.

H.E. Berg visited the National Lead Company Plant at Fernald, Ohio to discuss uranium core shipping schedules and future uranium core requirements.

A. Visits and Visitors - continued

F.K. McCune, Executive Vice President in charge of the G.E. Atomic Products Division, visited the Fuels Preparation Department on August 30, 1957.

B. Reports of Invention

Members of the Operation engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during August, 1957.

C. Meetings

Members of the Operation attended 17 staff meetings, 12 information meetings and 30 safety and security meetings.

D. Significant Reports Issued

1. Routine

Number	Title	Author	Date
HW-51192	General Analytical Control Program I	GB Hansen	7-1-57
HW-51196	Uranium Quality Control Analytical Results	GB Hansen	7-1-57
HW-51394	Report of Uranium Accountability in Manufacturing Operation for the Quarter ending 6-30-57	WG Tews	7-16-57
HW-51785	Monthly Report, Quality Control Operation, Fuels Preparation Department, July 1957	TD Naylor	8-1-57
HW-51865	Production Reports, FPD Month Ending July 31, 1957	HE Berg	8-7-57
HW-51881	Fabrication History of Uranium Cores for July 1957	RE Olson	8-9-57
HW-51994	Uranium Quality Control Analytical Results	GB Hansen	8-29-57

2. Non-Routine

HW-47875	Continuation of Porosity Reject Data	RE Olson	8-1-57
HW-50993	Daily Control Sheet Overlay	RE Olson & GX Beard	7-23-57
HW-51452	An Apparatus for the Determination of Total Gas in Fuel Element Samples	RI Miller	7-30-57

2. Non-Routine - continued

Number	Title	Author	Date
HW-51453	Correlation of a Rapid Surface Hydrogen Analytical Technique with Bond Quality Measures and Total Hydrogen Analyses	RI Miller	7-29-57
HW-51804	Production Goals, Calendar Year 1957	HE Berg	8-2-57

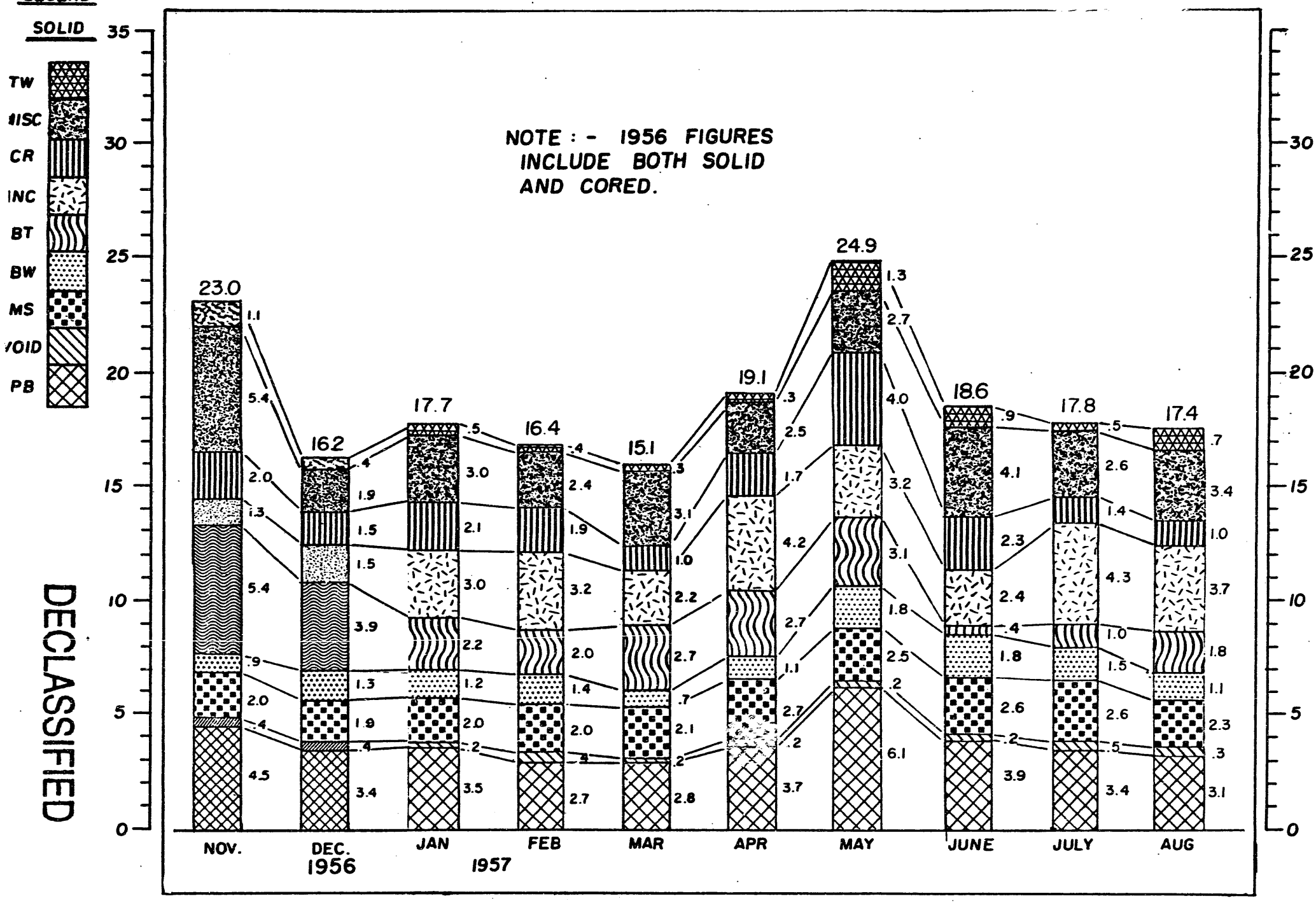
K. V. Slane

Acting Manager - Manufacturing

KVS:RIB:rhs

8" CANNING REJECTS

BREAKDOWN BY MAJOR CLASSIFICATIONS



PREPARED BY G.X. BEARD

[redacted]

ENGINEERING OPERATION

August, 1957

VISITORS

Name	Company	Contact	Date	Reason
Mr. Bachelor	Bachelor Eng'g. Co. Seattle, Washington	JW Talbott	8-23	Consulting on steam plant.

TRIPS

RG Post	Argonne National Lab. Lemont, Ill.	JE Draley	8-22	Consult on aluminum alloys
	Alcoa, Pittsburgh, Pa.	KE Baker	8-23	" "

PERSONNEL

Name	Title	Nature of Change	Date
Testing Methods			
RL Scott	Eng'g. Assist.	Transferred out.	8-1

PROCESS ENGINEERING

Regular Production Rupture Experience

Thirty-three ruptures occurred during the month in normal uranium, solid fuel elements. Eleven of the ruptures were classified as core splits, 8 were side hot spot, 5 were unclassified, and 9 had not been examined for classification at month's end. The distribution of failures among the reactors was: 3 in B, 6 in C, 2 in D, 3 in DR, 1 in H, and 18 in KE. Eleven of the 18 KE ruptures which had been examined were core splits and presumably the remaining 7 unexamined failures will prove to be core split type failures. The high incidence of split type failures in KE reactor was not unexpected since power levels were either approaching or at the point where previous experience has indicated that solid uranium fuel elements fail by core splitting. Although no ruptures were sustained during the month in KE reactor which operated at about the same or higher power as KE, it is suspected that the absence of ruptures in KW is only a statistical anomaly.

Other factors which may have had an influence on the high rupture rate in KE reactor, but which cannot be directly connected were: some excessive temperature cycling during reactor fast startup apparently occurred, and all of the failures occurred in Fernald metal. In order to alleviate the rupture problems

in the K reactors, tube powers in both KE and KW have been decreased 6-7 per cent and sizeable blocks of tubes in rupture-prone areas of KE reactor have been discharged. The significant factor which can be learned from the month's rupture experience is that, as predicted, solid fuel elements fail with increasing frequency as the reactors approach specific tube powers which result in uranium core temperatures at or near the alpha-beta phase transformation temperature.

I & E Program

Irradiation of I & E fuel elements continued during the month without incident. Two hundred twenty-six tubes of I & E were charged into C reactor and 78 discharged at a variable goal exposure of 800 MWD/T. To date about 825 tubes of I & E fuel elements have been charged into C reactor and 282 tubes discharged without failure.

In order to alleviate the high water temperatures at the top of the annulus in I & E columns, new dimensions were selected for C and K size I & E, which will permit the fuel element to rest concentrically within the process tube. The new dimensions result in an overall diameter decrease of about 20 mils achieved by reducing the can wall thickness 5 mils (from 45 to 40) and the AlSi braze gap 5 mils (from 14 to 9). Canning experience indicates that the can wall and braze gap decrease will not adversely affect the canning yields. It was expected that process specifications could be issued during September for I & E fuel elements so that they could be considered as standard production material rather than production test material. However, the change in dimensions has prevented the preparation of a firm process specification and additional canning experience is required before removing I & E fuel elements from the production test category.

Three tubes of enriched (1.44% U-235) I & E fuel elements undergoing irradiation at C reactor at maximum specific powers of 90-95 KW/ft, have reached exposures of about 1775 MWD/T without failure. Ruptures were incurred in solid enriched control pieces at 1053 and 1226 MWD/T.

Full utilization of I & E fuel elements in C reactor is expected to amount to about 1500 tubes of I & E. To date C reactor has achieved about 35 per cent of this total, with a goal of 100 per cent achievement over the next 3-4 months.

Yields of I & E fuel elements reached a high of 71 per cent during the month in the pilot plant and 60-65 per cent in the 313 Bldg. production facility.

M-388 and Blunt Nose Truline Program

Irradiation of about 4500 fuel elements clad in M-388 Ni-Al alloy jackets continued without incident at B, C, D, and KE reactor. To date there is no evidence that the general corrosion properties of M-388 alloy is any worse than 1245 alloy. Approvals were obtained during the month for semi-production loading of solid (and/or cored) fuel elements clad in M-388 jackets and it is expected that charging at the rate of about 170 tons/month will start in September at

KE, C, DR, and D reactors. I & E fuel element jackets at present are about half and half M-388 and 1245 alloy. It is expected that the use of M-388 alloy jackets will be made standard after approximately one month of canning experience to determine the extent and affect of nickel build-up in the canning baths.

Charging of blunt nose truline fuel elements will start during September at the rate of about 180 tons/month.

Dingot Program

Additional improvement in the rupture performance (resistance to core split failures) of solid lead dip canned fuel elements might be achieved by the use of the purer metal as produced by the Mallinckrodt dingot process. Approximately 250 tubes of low hydrogen dingot metal fuel elements are undergoing irradiation at DR reactor, and have reached maximum exposures of 425 MWD/T. Eight monitor tubes have been discharged at exposures of 300, 500 and 700 MWD/T and are currently undergoing examination. Based on available information to date, the dingot metal produced by a process which achieves a low hydrogen content in the core, appears to be at least equivalent to the usual standard ingot metal. Negotiations have been completed with IPD to conduct a run-to-rupture test to determine how much better the dingot material is.

Process Technology

The autoclave cycle was reduced from 40 hours to 20 hours for standard solid fuel elements clad in 1245 jackets. I & E and M-388 jacketed fuel elements will continue to be autoclaved for 40 hours until the results of a production test comparing the irradiation performance of 40 hour vs. 20 hour cycle material are obtained.

Concurrence of IPD was obtained on a process change which reduces the welding cycle from 20 to 9 seconds. One production welder has been converted to weld on a 9 second cycle and semi-production, lot-identified pieces should be produced during September.

IPR Program

IPR size (2.1" I.D.) aluminum tubes have been received for the K through-holes, and they are being tested and prepared for installation. IPD expected to have these tubes installed on or about mid-September, which will permit the charging of two full length (38 pieces) columns of 1.8" IPR size M-388 alloy clad cored elements (0.75" hole) for exposure to 600 and 800 MWD/T. This test is designed to evaluate core stability and to optimize core I.D. for subsequent irradiations to higher exposures as warranted.

Examination of three IPR size cored elements, previously irradiated to a goal exposure of 600 MWD/T is incomplete. Preliminary results indicate normal surface conditions and no abnormal dimensional changes. A profilometer capable of making more precise measurements of IPR size elements is being obtained by IPD. In addition the elements will be broken for internal examination.

KER Loop Tests

Loops No. 2 and 4 were each charged with ten IPR size M-388 clad self-supporting I & E elements on July 25 and August 19, respectively. The pH of the recirculating water coolant in both loops is adjusted to 4.2-4.8 through phosphoric acid additions, and maximum specific tube powers range from 70-75 KW/ft. Loop No. 2 is operating with a maximum outlet temperature of 180 C and Loop No. 4 at a maximum of 200 C. Exposure of the material in Loop No. 2 is approximately 100 MWD/T. Because of the abnormal frequency of regular fuel element ruptures in KE reactor during August, it has not been possible to operate the loops consistently under scheduled conditions. For this reason the significance of any data on these initial tests will be questionable.

Loop No. 3 is scheduled to be charged with 4-element stainless steel clad clusters during September. Preliminary testing of the loop with standard size cored elements was interrupted in August, when a suspected failure occurred. This failure has not been confirmed, however, the pieces have been shipped to C Basin for cleaning and a more thorough examination.

Sylvania-Corning Hot Press Program

Uranium cores were received from Fernald by Sylvania-Corning in late August for assembly of 1500 hot press C size I & E fuel elements for evaluation at Hanford. Assembly of the 1500 pieces is expected to be completed during September and should be on site by early October.

MATERIALS ENGINEERING

Centrifugally Cast Uranium

Longitudinal mechanical properties of a few samples of centrifugally cast high silicon and high carbon uranium in the as-cast condition have been determined at 100 C. One group of three samples from an as-cast fuel element containing approximately 900 ppm carbon and 900 ppm silicon show an average ultimate strength of 100,000 psi, yield strength of 56,000 and nine per cent elongation as compared to 90,000 psi, 36,000 psi and 28 per cent for typical production uranium. These data also indicate that silicon or carbon plus silicon increases the strength of the cast uranium, but that carbon alone does not. In all cases the ductility was decreased. Other grain refining alloying elements are being investigated at FMPC.

Approximately 125 centrifugally cast solid fuel elements of unalloyed normal uranium have been received from FMPC. These pieces will be inspected and canned and at least two tubes of this metal will be reactor tested. Some problem of surface quality exists in this first group of bare pieces which may delay the accumulation of enough material to charge into HAPO reactors. FMPC expects to ship about 120 centrifugally cast I & E pieces soon. These will also be examined in anticipation of reactor charging two tubes of reasonably good quality metal centrifugally cast into I & E fuel cores.

Aluminum Components

Four 1245 alloy cans fabricated by Alcoa from ultrasonic-reject bloom stock and three regular 1245 alloy cans were radiographed in an effort to locate structural defects as indicated by ultra-sonic and eddy-current testing. The technique should reveal a defect equivalent to 1/4 to 1/2 of one per cent of the can wall thickness. However, no defects were found. Subsequent progressive caustic etching, generally removing two to five mils per immersion revealed one inclusion. It is planned to determine the size of this inclusion by metallographic examination. An anneal test on four reject-bloom-stock cans indicated no defects. It appears at present that the reject-bloom-stock cans are equivalent in quality to the standard cans used as controls.

A recent rash of in-reactor side-hot-spot failures of standard fuel elements jacketed in 1245 aluminum cans fabricated by Hunter-Douglas prompted an investigation into the canning history and can quality of the subject fuel elements. Although the canning process was not abnormal, it appeared possible that fuel element quality might be influenced, since four of the five failures were canned on the same line on the same day. In addition, although the can alloy was within chemical composition specifications, the iron content was about 0.1 per cent below the normal of about 0.3 wt. per cent. Recent preliminary corrosion test data by R. L. Dillon (HLO) indicates the induction period required for initiating inter-granular corrosion is significantly increased on increasing the iron content from 0.2 to 0.3 wt. per cent. For the present, it was concluded that the poor performance of the Hunter-Douglas cans might be due to the can fabrication, the canning process, the low iron content of the alloys, or a combination of these factors. Specifications for iron in 1245 alloy have been revised to 0.35 to 0.50 wt. per cent rather than the 0.55 max. wt. per cent of iron plus silicon, on the basis that some increase in resistance to intergranular corrosion might be expected without change in cost or fabrication techniques. Hunter-Douglas has been asked to fabricate the balance of their order (30,000 cans) using 1245 alloy with the 0.35 to 0.50 wt. per cent iron.

I & E caps and cans fabricated by Hunter-Douglas from Kaiser M-388 aluminum have been received, and are satisfactory insofar as dimetral and wall thickness dimensions are concerned.

Extrusion Cladding

Preparatory to corrosion testing fuel elements extrusion clad by the General Cable Company, considerable effort was devoted to production of satisfactory fusion-welded end closures, since the jacketing was not metallurgically bonded to the uranium or the aluminum end-plugs, and the mechanical closure was not water-tight. Eleven fuel elements with fusion welded closures were autoclaved and a total of six failed. In most cases, deterioration of the uranium and swelling of the jacket proceeded to such an extent that the path of water entry could not be determined. However, it is believed that the numerous inclusions of foreign material in the jacket permitted water entry, particularly since subsequent examination of jacketing material revealed inclusions which penetrated

through the entire jacket thickness. Three fuel elements which survived autoclave testing have been exposed to 300 Area process water at 95-100 C for two weeks, and this will be continued with intermittent examination.

Three samples of foreign material included in the extrusion cladding jacketing were spectrographically analyzed, and, as expected, were high in iron. The carbon content is also to be determined.

Very preliminary metallographic examination of inclusion-free sections of longitudinal diffusion welds reveals fairly well-defined demarcation lines between material from different billets; however, in most cases these are not continuous through the jacket wall, and whether or not these constitute a serious defect has not been determined.

Pilot Plant

Activities during August were mainly directed to maintaining a sustained production effort with the best process established to date. The process used had previously produced a yield of about 65 per cent to autoclave on a small lot basis. Significant techniques employed were: 50 second canning cycle, 75 second can-sleeve preheat, spire core insertion, cap vibration and the use of tapered recess cans. All components used were M-388 alloy.

During this sustained yield program about 16 tons of fuel elements were canned. Ten tons of acceptable fuel elements were delivered to the 313 building for final processing. Five lots were represented in this production material with the yields to autoclave ranging from 48 to 71 per cent and averaging 60 per cent.

The principal reject categories were external and internal penetration which accounted for about 20 per cent of the defective elements. Caustic penetration studies indicated in most cases a residual can wall of 22 to 28 mils which was well above the 20 mil minimum. This apparent unreliability of the penetration tester may be attributed to its sensitivity to mars or surface irregularities on the can wall surface in addition to the internal wrinkling effect. Improvements of testing equipment to isolate the true penetration should reduce the reject rate for this category and significantly improve overall yield rate for I & E fuel elements.

Other activities were conducted concurrently with the sustained yield program. Significant among these was the canning of 600 C size fuel elements in O size cans with enlarged I.D.

Equipment Development

Preliminary design of a steel protective hood and agitator for I & E leaker recovery has been completed. This equipment will fit Ajax induction furnaces. The recovery process provides automatic closing of the access door prior to the start of the recovery cycle and the entire operation is designed to prevent any possibility of damage to personnel or property.

The use of molten baths for reject recovery is being investigated. Previous effort reported in HW-12033 and by E.A. Smith of HLO indicates that approximately 3000 four inch lead dipped solid fuel elements were satisfactorily recovered in the duplex bath, recanned, and irradiated as a portion of PT 313-94-M. The principal difficulty with this process is the increase in U-Al-Si compound layer thickness. Two tests are planned; melting of the aluminum can followed by canning, and melting of the aluminum can, stripping the compound layer, and canning.

Design of a cross slide lead screw for the Monarch lathes in the 306 and 313 buildings has been completed. This lead screw will move the tools twice as far per revolution as the present lead screw. It is equipped with a flywheel and a large handle which will further increase the production rate of these lathes.

The duplex agitator shaft is being redesigned. Two shafts have failed. Each failure presents the possibility of splashing the operator with molten Al-Si. The shaft failure seems to be due to an inadequate cross-section weakened by a weld which is subjected to continuous stress reversal.

TESTING METHODS

Fuel Element Testing

Significant reductions in the I & E internal penetration test reject rates have resulted from the elimination of spire wrinkles by improved canning techniques. Four per cent of the I & E elements canned in the 313 Building in August were rejected by this test. Many of these are still "false" rejects due to signals obtained from surface blisters associated with underlying voids. In one case, sectioning of one of these supposedly "false" rejects revealed the wall thickness to be actually less than 20 mils at the location of the surface bump. Laboratory work to develop circuits for discriminating against these extraneous signals has continued. Evaluation of the multiphase differential probe was delayed by the necessity for greatly reducing the electrical noise level in the laboratory vectorscope system which is being used. This has been accomplished and measurements with the new probe are underway. The two frequency scheme for discriminating against surface bumps proved impractical in its original form. However, some changes in its mode of operation have given a reduction in the effect of bump signals and this method is being further developed.

Additional tests were made to compare the 313 Building and Pilot Plant bond and penetration testers. Satisfactory correlation was obtained for both the internal and external penetration testers. The internal bondtesters compared favorably except that the reject points were adjusted so as to result in a slightly higher reject rate in the pilot plant. The external bondtesters correlated poorly. It is believed that the 306 two-crystal system is more sensitive to brittle bonds and porosity than is the 313 single crystal system. In order to avoid detection of brittleness and porosity with the 306 instrument, the gain must be reduced to where signals are not obtained from the edges of unbonds. Experiments are underway to resolve this problem.

Modifications of the I & E automatic testing conveyors are being designed to permit testing four and six inch elements.

Thirty-eight washer fuel elements were examined for HLO with the laboratory I & E penetration tester. External reject signals were obtained from 10 per cent and internal reject signals from 77 per cent. These elements have been returned to HLO for destructive examination to determine if there are true Al-Si penetrations or if the tester is detecting misalignment of the washers.

Methods Development

A report describing the preliminary development of the ultrasonic bare uranium surface inspection technique was completed and will be issued as formal report HW-51979. Fabrication of the prototype instrument is expected to be completed in September.

A preliminary study has been completed and reported (HW-50707) on the concept of automatic individual fuel element grading, identification, and data processing This study concludes that there is no incentive for developing complete identification systems without first developing the methods and tools for grading the elements with respect to certain physical characteristics. The technical feasibility of obtaining such graded information is demonstrated and several possible schemes for individual element identification are examined. The potential returns in increased understanding of fuel element properties and their effect on performance give sufficient promise of paying off in improved performance to encourage further development of, first, grading methods and, later, identification systems.

The prototype automatic Sonic Orientation Resonance Tester for detecting preferred grain orientation in uranium is being tested in the laboratory. Difficulties have been encountered in vibrating the fuel elements in both the longitudinal and torsional modes while taking length measurements for frequency compensation. With the present arrangement, the length measurement dampens one or both of the vibrational modes. Several changes in the mounting system are being made to overcome this problem.

Studies are being made of two new circuits which may permit considerable simplification of the eddy-current type testing devices. One is a self-excited Wien-bridge oscillator which in its first states of development gives signals from fabricated defects comparable to those obtained with the present penetration testers. However, the new circuit could be built on only one chassis, resulting in considerable saving of space, components, and maintenance costs. The other circuit is a transistor oscillator which has a very low level of noise and distortion compared to other laboratory oscillators.

Hanford Test Reactors

Metal testing continued routinely. Experiments with the 7-rod cluster KER loop mockup were completed and reported in HW-51871,"Relative Power Generation of a 7 Rod Cluster Fuel Element in the KER Loop," C.E. Fitch. Technical assistance was provided for several other special tests.

DESIGN & PROJECTS

Status of Projects

CG-713 - Conversion to I-E Lead-Dip Fuel Elements: With the completion of the plan for equipment layout, preliminary design will be complete. A proposed layout was circulated for comments during the month and revisions made reflecting the ideas of interested parties. The revised layout has been issued.

The revised project proposal (HW-51271) was authorized by AEC on August 29.

CG-737 - Electric-Pneumatic Control System for Canning Area - 313 Building: Design has been completed, equipment and material is on order and work is tentatively scheduled to begin about October 15 after arrival of material.

CG-759 - Additional Steam Generating Capacity - 300 Area: AEC has taken no action on this project proposal which was originally submitted on June 6, 1957. The amount of increased capacity necessary is contingent upon the location of facilities associated with the PRPR. AEC has therefore deferred action on this project pending decision on location of PRPR.

Although the size plant proposed might not be necessary immediately should plutonium facilities be located in a separate area, the incentive for reducing the capacity will be small. Advantages for retaining the proposed increase are being evaluated.

IR-228 - 300 Area Evacuation Warning System: Design was completed and procurement initiated during the month. Work is on schedule and within estimated cost.

Increased Water Capacity - 300 Area: Preparation of the project proposal was completed and departmental approvals obtained. The proposal provides for a new 16" water line from North Richland, minor changes in the area distribution system and increased area storage and pumping capacity. Estimated cost - $321,500 including $4,500 transferred capital property.

Research and Development

Lost Punch Cladding of I-E: Letters from Verson Allsteel and Impact Extrusions received during the month expressed confidence in their respective ability to solve the extrusion problems associated with this method of cladding. Arrangements were made to visit their plant sites, discuss details and solicit proposals for doing the necessary extrusion development work.

Documents Issued

HW-51877 - Design & Projects Operation Semi-Monthly Status Report, 8-9-57, by J. W. Talbott.

HW-52031 - Design & Projects Operation Semi-Monthly Status Report, 8-23-57, by J. W. Talbott.

HW-51713 - Conversion of Fabrication Facilities to I-E Fuel Element Production - Project CG-713, Phase I, by A. J. Karnie, 8-6-57 (dated 6-26-57).

DRAFTING AND FILES

Principal Jobs In Drafting

306 Building:
- I & E Tester drawings - 4 new - 10 revised
- Lathe Cross Feed Screw
- Dual Bond Tester - 4 Electrical Diagrams

313 Building:
- Sleeve Storage Conveyor
- 7 new Component drawings
- Electric Schematic - B & P Test
- Vibrating Mount
- I & E Conversion - Proposed equipment changes

Miscellaneous:
- 3717 Building Truss changes
- Roof mounts for evacuation sirens & electrical diagrams
- Automatic Badge Disassembly Machine
- Resistance Furnace
- As-Builts - 382 Bldg., 4 drawings; 384 Bldg., 35 drawings; 3703 Bldg., 4 drawings; 3706 Bldg., 3 drawings; 3722 Bldg., 1 drawing.

Drawings Produced:

New	42
Revised	70
Small Charts	30
Large Charts	5
Miscellaneous	2

ADVANCED ENGINEERING

Effect of Upsetting in Hot Press Canning

It has been previously postulated that the "upset" induced in uranium core in the hot press canning process would probably have an adverse effect in fuel element performance. Data reported in the July Monthly report from Savannah River appears to provide significant support for the postulate. Their hot pressed elements, made by Sylvania Corning, normally are "upset" 3.3%. Du Pont reports "About ten times as many Mark VII-SC or Mark VII-SPP slugs stick in the quatrefoil after irradiation because of poorer dimensional stability. It is believed that preferred orientation of stresses introduced by the upsetting of the core during hot pressing may be responsible for this behavior".

Uranium Processing Costs

The cost of converting concentrates to a solid uranium core is $2.24 per pound

[redacted]

of uranium and that of converting UO_3 to a solid uranium core is $1.56 per pound of uranium. These costs include direct and indirect charges as well as amortization costs based on 5000 tons per year thruput. The overall yield from U_3O_8 concentrate to solid core is about 50%.

Core costs are estimated to be reduced from $15.30 per pound of uranium to $10.50 by 1962. This reduction is due primarily to lower ore costs which have been guarantees by the AEC from 1962 thru 1966 and improvements in processing techniques.

The major factors contributing to the uranium core cost of $15.30 per pound are: U_3O_8 concentrate $13.06 (85%); converting concentrate to derby metal $1.45 (10%), and converting derby metal to machined core $0.76 (5%).

Aluminum Alloy Program

An accelerated program for the irradiation evaluation of "high temperature" aluminum alloys has been undertaken.

KER I & E components made of aluminum alloys with varying amounts of iron, nickel, titanium, beryllium, and silicon are being procured. The selection of these alloys is based on the low corrosion rates observed at HAPO, ANL and ALCOA.

Preliminary experiments to estimate the mechanical properties have been initiated in HLO. The target date for charging is January 1, 1958.

INVENTIONS

All Engineering Operation personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during July, 1957, except as listed below. Such persons further advise that, for the period therein covered between reports, notebook records, if any, in the course of their work have been examined for possible inventions or discoveries.

"Non-Ferrous Alloy Turning Tool", J. H. Johnson.

P. H. Reinker

Manager - Engineering

PH Reinker:mbs

[redacted]

FINANCIAL OPERATION

AUGUST, 1957

AUDITS AND PROCEDURES

Auditing - The audit schedule for the year ending July 31, 1958 was prepared and forwarded to Contract Administration for consolidation and submission to the Commission. Present plans, which are contingent upon the GE Traveling Auditors performing a HAPO general audit near the end of this fiscal year as requested, are to rely primarily on their coverage of the conventional financial audit areas. From an internal audit standpoint, effort will be concentrated this year on improvement of operations through work consolidation, simplification, and reduction of time and cost, as opposed to emphasis on accuracy of records and reports and compliance with policies and procedures. Appropriate attention, however, will be given to these latter items.

A meeting with auditing representatives of other departments was held to report developments of mutual interest, to resolve problems, and to exchange information which would contribute to continued cooperation and increased audit effectiveness.

Office Procedures - Selected financial reports were critically reviewed to determine necessity and usefulness. Additional detailed analysis will be made in order to simplify preparation, reduce size and distribution, and to improve formats. The advisability of extending the daily cost distribution procedure to all nonexempt employees of the Department continued to be studied. Meetings have been scheduled between Product Cost Operation and administrative employees of other components to develop proposed detailed procedures.

Other procedural accomplishments include:

1. Completion of a survey and report on work performed within the Department which may be appropriate and advantageous for performance by the Financial Operation.

2. Participation in a meeting with HAPO Procedures Specialists to scope a program for mechanization of cost accumulations and reporting.

3. Review of 300 Area requirements for report bindings and consideration of the type being generally adopted within the Company.

4. Assistance in planning a series of meetings covering the "appreciation" portion of a paperwork improvement program.

Forms Control - A number of new and redesigned forms were processed this month. This reflects increased initiative in improving forms and a willing acceptance of suggested changes. Following are examples:

Work Order Control Index - developed by Product Cost Operation to simplify recording and reference to work order status.

AUDITS AND PROCEDURES (Continued)

Request for Equipment Not Included in Construction Projects - developed by Plant and Property Accounting to provide for uniform submission of this data, with possible plant-wide applicability of the form.

Instrument Calibration Request and Tag - Instrument and Electrical Operation - a two-part, multi-functional tag which eliminates the use of a second two-part tag.

Weekly Manufacturing Schedule - Materials Operation - formalizes a report on duplimat which substantially simplifies preparation of the desired number of copies.

GENERAL ACCOUNTING OPERATION

Efforts directed toward lower costs have resulted in a reduction of one employee within General Accounting. In order to effect a reduction, certain job functions were reassigned; namely, responsibility for travel, living, and entertainment expense has been shifted to General Ledger. Other reassignments were made among nonexempt personnel.

Reductions were made in monthly reporting requirements as a result of discussions with Contract Administration in regard to reports furnished to AEC. Results of this investigation together with other changes will accomplish an average savings of three man-days per month. In the future, report number 120, Equipment Work in Progress, will be prepared on reproducible scrolls using the ozalid process.

A new equipment data sheet has been devised correcting deficiencies of the old form. The new sheet has been approved by operating components and will be placed in use on the mid-year equipment budget review.

A new method has been adopted for posting uninstalled equipment records. Work formerly posted on the IBM 884 machine will now be posted by using a conventional typewriter and a special form designed to permit simultaneous preparation of data for key punching. The new method will not only cost less, but will improve efficiency and convenience.

An Appropriation Request for two load lugger type refuse containers costing $1,200 submitted by Maintenance and Power Operation was reviewed. It was found these items could be purchased as off-site excess material for $300. The Appropriation Request was cancelled and a purchase order initiated for purchase of the two excess containers.

The preliminary allocation of equipment funds for FY 1958 published by Contract Administration indicates $502,000 will be available to FPD, including carry-over commitments of $189,000 from FY 1957. Thus, funds available for new items amount to $313,000. Comparison of the preliminary allocation for new items with the FY 1958 Forecast submitted August 15, 1957, is as follows:

GENERAL ACCOUNTING OPERATION (Continued)

	FY 1958 Allocation	FY 1958 Forecast
Projects	$ 15	$115
Laboratory	22	22
Process and Spare	228	356
Shop	20	20
Miscellaneous	28	34
Total	$313	$547

One new Appropriation Request amounting to $25,000 and two Appropriation Request revisions totaling $1,837 were processed during August.

Directive No. HW-428, Modification No. 1, was received August 29, 1957 authorizing costs in amount of $368,000 for Project CG 713 - Conversion to I & E Lead-Dip Fuel Elements. This project is to be financed from Budget Item 2-23X-5013.

In the future Traffic Operation will purchase both air and rail tickets for personnel requesting reservations. In the past only air tickets were purchased by Traffic Operation and rail tickets were purchased by the employee.

The present OPG and Advice system is currently under study. A list of suggested improvements together with discussion and recommendations was submitted to management for review.

August travel and living statistics compared with July are summarized below:

	August	July	Increase or (Decrease) Over July
Travel Advances to Employees:			
Balance at beginning of month	$3 322	$1 981	$ 1 341
Current month charges	4 836	3 688	1 148
	8 158	5 669	2 489
Less:			
Expenses accounted for	5 093	1 222	3 871
Advances refunded	917	1 125	(208)
	6 010	2 347	3 663
Balance at end of month	$2 148	$3 322	$(1 174)
Outstanding travel advances			
Current	$1 934	$3 254	$(1 320)
Outstanding over 15 days	214	68	146
Balance at end of month	$2 148	$3 322	$(1 174)
Number of expense reports submitted	14	17	(3)
Number of cash advances	11	16	(5)

MEASUREMENT PROJECT

The study of monthly Measurement Reports issued by Manufacturing Operation and Maintenance and Power Operation was completed during August. As a result, the Manufacturing report will be discontinued and the Maintenance and Power Report revised. The majority of data furnished on the Manufacturing Report was available in other reports and usually at an earlier date.

Twenty copies of the unclassified Department Measurement Report for FY 1957 were distributed to level 4 managers and measurement specialists in other HAPO components.

Final rough draft of the second section of the Department Measurement Manual is 75% complete. This section will be printed and distributed to level 3 and 4 managers during December.

Several meetings were held during the month with personnel of the Maintenance and Power Operation to assist in the development of the Operation's 1958 goals.

PERSONNEL ACCOUNTING OPERATION

Discussions with Salary and Wage Administration and Data Processing disclosed that certain reports and records presently prepared and maintained by Personnel Accounting could be adopted with certain minor revisions for use in connection with exempt salary administration procedures. This would permit Salary and Wage Administration Operation to eliminate clerical work required to prepare Monthly Salary Administration Report No. 259. Further discussions are scheduled for preparations to proceed with this program.

Plans and procedures for Personnel Accounting to assume additional responsibility for maintenance of overtime records and preparation of overtime eligibility lists were discussed with Manufacturing and Maintenance and Power. Procedural changes will permit elimination of duplicated clerical effort required under the present method. Plans provide for Personnel Accounting to assume this additional responsibility during September.

Benefit payments under the Insurance Plan during the period January 1, 1957 to August 31, 1957, totaled $119,829, detailed as follows:

Weekly sickness and accident benefits	$ 6 400
Comprehensive medical expense benefits:	
Personal	26 408
Dependent	55 576
Death benefits	31 445
Total Benefits	$119 829

PERSONNEL ACCOUNTING OPERATION (Continued)

Insurance coverage for this same period cost employees $65,161. Estimated cost for Fuels Preparation Department of $56,295 results in a total cost of $121,456. Comparison discloses that total cost of the Insurance Plan exceeded total benefit payments by $1,627; however, consideration has not been given to local administrative cost. The value of the Insurance Plan to Fuels Preparation Department employees is emphasized by the fact that employee contributions totaling $65,000 have returned benefits of nearly $120,000.

PRODUCT COST OPERATION

Meetings are being held with cost personnel in all departments to study ways and means of accumulating overhead costs and their distribution to end functions.

A series of cost information notices is being prepared for inclusion in the Management News Bulletins. Notices will cover items such as rates for duplicating, vehicle rental rates, variable IME liquidating rates, and other pertinent cost information. The intent is to inform management of means of reducing operating costs.

A meeting was held with Data Processing to resolve problems involving the forthcoming revision to salary distribution. This revision involves distribution of salaries prior to preparation of payroll and will provide earlier work order costs to foremen as well as earlier month-end costs. Salary reports and weekly work order cost-to-date reports will be prepared and made available by Tuesday of each week for the preceding week, rather than Thursday.

Level 4 operating cost reports for July were verifaxed directly from ledger sheets and issued to responsible managers on the same day final costs were known. This was a reduction of two days' reporting time. In addition to the verifax copies which are detailed cost information reports, an ozalid mat is being designed to summarize cost of each operation for issuance approximately two days after the verifax distribution.

The detailed procedure for conducting a physical inventory of essential materials excluding coal in custody of Fuels Preparation Department has been completed and distributed. The procedure was discussed with personnel directly responsible for preparing and completing the physical inventory. Physical count of material will begin October 1, 1957.

A procedure for conducting semi-annual physical inventory of special materials was completed and distributed to personnel responsible for the preparation and completion. The procedure was discussed with personnel responsible for the completion of the physical inventory. Weighing and recording will begin September 30, 1957.

PRODUCT COST OPERATION (Continued)

Seven new captions have been added to the list of material captions to aid in future cost allocations:

010 - Aluminum Cans	I & E	10¼ - K - 2
011 - Aluminum Cans	I & E	10¼ - D - 1
012 - Aluminum Cans	I & E	10¼ - D - 2
034 - Aluminum Caps	K - 2	
035 - Aluminum Caps	D - 1	
039 - Aluminum Caps	D - 2	
862 - Steel Sleeves	I & E	10-9/32 D

All low-cost, low-consumption power materials were eliminated from essential materials and will be charged directly to operating costs as shop supplies. Materials included were:

Chlorine
Disodium Phosphate
Sodium Sulphite
Sulfuric Acid

Discussions for the improvement of the presentation of the SS Material balance report from accountability resulted in the following changes:

1. Use of financial terminology
2. Segregation of data by inventory classification
3. Simplified form
4. Acceptance of ozalid copy of work sheet as formal report

Monthly reporting of quantities of enriched uranium has been changed from grams to pounds. This places all active material on a comparable basis.

An analysis of July production costs was made in an effort to express dollars charged to production in terms of people which these dollars represent. Included in this analysis was a detailed study of assessments from Hanford Laboratories and Relations and Utilities. By using information (i.e., total costs and personnel) reported on the HLO and RUO July operating reports, we were able to develop average cost-per-person data for each level 4 operation. Using the average cost-per-person figures, dollars charged to production were converted to equivalent personnel. Explanation and justification of these assessments is being sought from the charging components.

An estimate of conversion costs was prepared for fiscal and calendar year 1958. This estimate was based on production, yields, and efficiency as outlined in document HW-51698-RD. Results were used to make charts for the General Manager for a meeting with F. K. McCune on August 30, 1957.

Two cost studies were prepared at the request of FPD Engineering covering the economic feasibility of adopting the following proposals: (1) a method of recovering fuel elements by substituting a molten bath for the current chemical process, and (2) an ultrasonic method of cleaning caps and cans instead of using chemicals.

PRODUCT COST OPERATION (Continued)

An estimate of direct material consumption based on standards was prepared for Materials Control. This report will be prepared on the first working day of each month to assist Materials Control in determining that actual consumption figures from the field are correct.

New rental rates on all FPD buildings have been prepared and are to be reviewed by the Specialist Landlord and the Specialist - Maintenance and Power Administration. The new rates were based on FY 1957 costs and expected changes in building usage. New rates will recover the same amount of revenue monthly even though rates for the majority of production buildings have been decreased. Rates for buildings used by service groups have been increased to recover anticipated costs. New rates are expected to reduce production cost.

All budget schedules for FY 1958 have been completed. The latest production schedules (HW-51698-RD), personnel estimates, and all known changes in organization have been incorporated by level 4 components.

W. S. Roe

Manager - Finance

WS Roe:whm

MAINTENANCE AND POWER OPERATION

AUGUST 1957

GENERAL

Material and Property

Productive Maintenance Program

Outstanding orders as of 7/31	149
Orders issued in August	152
Orders completed in August	123
Orders outstanding as of 8/30	178

Verification of Property Record Unit Control Cards was completed. The IBM listing of the equipment included on these cards indicates financial responsibility for each component, as of 6-30-57, as shown below:

4519	$ 7,153.00
4520	4,434.00
4530	808.00
4540	3,650.00
4550	105,143.00
4560	163,072.00
MPO Total	$ 284,260.00

The Cost Reduction Program realized a net annual saving of $6,416.00. The total annual savings for the quarter are $23,279, representing a quarterly budget realization of 105 per cent.

Tentative goals for CY 58 and CY 59 were prepared and distributed to Level 4 Management. Goals correspond to the pattern set by the Key Results Areas of the General Electric Measurement Program.

AREA MAINTENANCE

Duplicating statistics for the period covered are:

PROCESS	NO. OF ORDERS PROCESSED	NO. OF COPIES MADE
Multilith	858	425 640
Verifax	86	1 088
Ozalid	26	800
		427 528

There were 18 formal reports completed. These reports consisted of 9,731 volumes with a total of 301,007 pages.

The backlog in the Duplicating Operation has been reduced to 200,000 impressions; 95 per cent of the backlog is formal reports.

Bare areas in the lawn at the 3760 Building were reseeded and fertilized. This work was done on a work order from the AEC.

Two sets of aluminum scaffold, with casters, were obtained from excess. The scaffolding will be used by painters, sheetmetal men and other crafts in building maintenance. The cost of this equipment will be repaid within a six month period by increased manpower efficiency.

The conversion of the valves on compressed gas manifolds in the 300 Area is 30 per cent complete. This work was authorized in a letter from the HAPO Central Safety Council dated June 12, 1956. This conversion conforms to standards established by the Compressed Gas Association and the American Standards Association.

The following significant items of equipment were completed in support of the Chemical Processing Research Lab (321 Building):

Step Tray Contactor: A 16" column, 22' long, was modified internally and externally by the addition of three step trays with downcomers, two feed distributors, three circular sight glasses, and one rectangular sight glass. This column will be used to determine the suitability of multiple interface columns for process use.

Wet Separator: The separator was fabricated of 4" glass tubing and stainless steel. Four sets of stainless steel trays are supported in the center of the glass tube. The separator removes the uranium fines from the calciner off-gas by the use of water sprays and trays.

Tube Bundle Test Stand: A stand to permit the thermal shock testing of titanium tube bundles was fabricated.

Tubing rated at 30,000 psi on the high pressure press in the 325 Building was replaced with 50,000 psi tubing to permit the use of higher pressures.

A water sample line was replaced at the Pasco Pumping Station. The line obtains samples of the Columbia River water for analysis by the Regional Monitoring Operation, HLO.

INSTRUMENT AND ELECTRICAL MAINTENANCE

The Portable Shop repaired a total of 1,037 radiation survey instruments. The average repair time per instrument was 1.43 man-hours.

The unit cost for July established a new low of $7.03 per unit.

An Ainsworth Micro Balance was adapted for use in density measurements for the Physical Metallurgy Group, HLO. This balance will weigh accurately to the 5th decimal place with plus or minus 1.5 microgram reproducibility.

The detector system of the GE diffractometer was converted from a Geiger-Mueller type to a scintillation type for the Physical Metallurgy Group, HLO. This work included modification of the head for the crystal and photo multiplier tube, installation of a new pre-amplifier, and adapting the counting system to the new signal. Immediate use of the equipment will be for density studies.

A Brown "Cycle-Matic" recorder was modified and 12 thermocouples fabricated and installed in cluster type ceramic fuel elements. These fuel elements are being tested in the 305 Building. The thermocouples will provide cross section temperature measurements on the fuel elements. Some of the problems associated with this work were:

1. Imbed thermocouples 20 mils into a 30 mil aluminum jacket.
2. Imbed thermocouples 1/4" into the very hard fuel material.
3. Seal the thermocouples and entry holes to be absolutely water-tight.

POWER

Power Statistics	August	July
Average Steam Generated (M lbs/hr)	25.7	28.2
Maximum Steam Generated (M lbs/hr)	35.0	43.0
Total Steam Generated (M lbs)	19 137	20 949
Coal Consumed (tons)	1 269	1 383
Evaporation Rate (Steam/#Coal)	7.54	7.56
No. of Boilers on - 2 (8/1 through 8/31)		
Sanitary Water from 3000 Area (Million Gals.)	69.1	68.8
Total Water from 3000 Area (Average Rate GPM)	1 549	1 542
Soft Water from #3 and #4 Wells (M Gals)	17.4	13.4
Water from #2 Well (M Gals)	.25	.25
Peak Water Consumption for 24 Hours (Million Gals)	2.5	2.5

The new coal crusher was adjusted by moving sectors (hammers) from 10" centers to alternate $8\frac{1}{2}$" centers. This change was made to reduce the percentage of fines produced during the crushing operation. The fines had resulted in inefficient operation due to their loss in transportation to the coal bunkers, plugging of the auger and bucket conveyor, carry-over, without combustion, in the air draft of the boiler, and increased fly ash leaving the stack.

The cylinders operating the dumping grates on #4 Boiler were relocated from the inside of the ash pit to the outside. Actuation of the cylinders was changed from steam to compressed air.

The air compressor control panel was checked and overhauled. Compressor loading time delay period was increased from 3 to 10 seconds to permit the compressor to come to full speed before pumping.

The following work was done on the east high tank:

The 4" overflow line was repaired; rivets on the ladders replaced where necessary; target repaired and painted for better visibility. The tank was inspected internally for corrosion and pitting. The inspection revealed that corrosion is not serious at this time. (External painting and either cathodic protection or inside painting is scheduled for the 4th Quarter of FY 58).

Annual and interim physical examinations were rescheduled to periods when relief operators will be available. This will reduce costs by avoiding the hold-over of relief operators.

PLANT ENGINEERING

There were 33 craft training lectures held for electrical, instrument, mechanical and power personnel. This represents 389 man-hours of training.

The Work Sampling Study of the Area Maintenance Operation and the Instrument and Electrical Maintenance Operation Craftsmen was completed. The results of this study indicated that these crafts were working 53.3 per cent of the time, a 4 per cent increase in working time over a similar study made in 1956.

Comments on design criteria and design drawings for the PRPR continue to be provided to HLO. Careful consideration is being given to the maintenance aspects of the layout of installed equipment in this facility.

T. D. Gibbs represented FPD in a meeting held on August 26 in the 100 and 300 Areas to discuss instrument and electrical equipment maintenance. Managers of the University of California Research Laboratories in Livermore were present.

FIRE PROTECTION

Fire Responses		Loss
HAPO	- 3	None
Construction	- 0	None
Private	- 0	None
Outer Area	- 0	None

Description of Significant Fires

None

Assistance was provided to the CPD Fire Department in controlling the Rattlesnake Mountain Range Fire on Friday, August 23, 1957. A pumper and power wagon and four personnel were involved from 12:30 P.M., Friday until 6:30 A.M., Saturday.

New fire fighting equipment placed in service:

1. A Ward LaFrance, 750 gpm, triple combination pumper.
2. A Model M-40 Army prime mover, which was modified to HAPO specifications to a tanker. This unit carries 1200 gallons of water and can deliver 200 gpm.

Excessed fire fighting equipment:

1. A 1942 Seagraves, 750 gpm, triple combination pumper.
2. A 1942 Dodge tanker.

SIGNIFICANT REPORTS

700-300 Areas Transportation by J. P. Fichten.

Swaged Thermocouples and Two-Color Pyrometry articles were submitted to the Manager, Personnel Development and Communication for possible use in the January 1958 GE Review.

The revised edition of L&N Micromax and Speedomax Manual has been completed by the Plant Engineering Manual Writers.

The revised edition of the Penetration Tester Manual, 313 Building, has been completed by the Plant Engineering Manual Writers.

REPORTS OF INVENTION

All personnel of the Operation engaged in work which might lead to inventions and discoveries advised that, to the best of their knowledge, none were made in the course of their work during August 1957.

Work was done relative to obtaining a re-evaluation of HWIR-746 (Swaged Thermocouples). The AEC was asked to reinvestigate this invention based on supplemental information provided them. They are not interested in filing a patent application. The material has been forwarded to the Patent Counsel, APD, Schenectady. He has been requested to withhold action on this invention report until sample thermocouples can be forwarded to the Measurements and Industrial Products Division for testing and evaluation.

PERSONNEL

Organization Changes

E. A. Pfistor was named Superintendent of Power as replacement for J.E.Benham who retires in October. Mr. Benham was placed on special assignment.

SAFETY, SECURITY AND RADIATION EXPERIENCE

Medical Treatment Injuries	23
Frequency Rate	5.15
Disabling Injuries	0
Near Serious Accidents	0

There were no cases of radiation overexposure reported.
There were no security violations reported.

MEETINGS

Round Table Staff	24
Safety and Security	29
Information	7

E. Hilgeman

E. Hilgeman:JPF:mkm

Manager
Maintenance and Power

EMPLOYEE RELATIONS OPERATION
August, 1957

PERSONNEL DEVELOPMENT

A total of approximately 1.1% of exempt time was devoted to training activities. Programs and courses included PBM-I, PMS&L, letter writing, customer relations and a paper work simplification clinic.

The third PBM-I series to be held during 1957 was begun during the month with 16 participants representing all FPD level 3 operations.

Arrangements were made for the Richland Chamber of Commerce to invite the General Manager and his staff to attend a briefing session of the Chamber's economics discussion program during September.

Two Fuels representatives participated in a PMS&L training course for leaders presented by a Sales Analysis Institute representative. They will provide refresher training for exempt employees.

A new program in letter writing, based on the government-sponsored "Plain Letters" course, was given in a pilot run.

The number of tech. grad. rotational assignments in Fuels has been reduced from 17 during the past fiscal year to 11 for the current fiscal year, based on a survey of all Fuels operations. The reduction is due in large part to the funds available for employing tech. grads. in such assignments.

One tech. grad. assignment opening was filled and one was vacated leaving a total of five such assignments filled at month's end. The number of summer students filling tech. grad. assignments dropped from seven to four.

COMMUNICATION

GE News coverage of FPD activities and people occupied a total of 321-3/4 column inches during the month. This represents an average of approximately one GE News page per issue. Slightly more than 306 column inches represented special material prepared through the GE News staff, and the balance represented routine news items.

Two major stories, one on "Noise Control" and one on the recently established FPD Craft Training program, were published in the GE News during the month. The noise control story had been in preparation for several months pending Department, Legal and Security approvals.

A proposed GE News story on the Department's Quality Control program was prepared and submitted for security approval through Oak Ridge.

One paper for presentation before a community group on the subject of Work Simplification was submitted to Public Communication for approval during the month.

Five Management News Bulletins were issued, as well as two FPD Newsletters. Arrangements were made for two General Manager's meetings, one with a group of exempt employees and the other with a nonexempt group. Two priority messages concerning other departments were communicated to level 3 managers only.

The Communication Plan for the September 6 attitude survey was developed and implemented. It included Management News Bulletin items, material for the August 26 FPD Newsletter and a letter mailed to all employees homes.

The September safety topic of the month was developed and distributed.

Plans were completed for holding four additional Communication Workshops on October 23 and 30 and November 6 and 13.

A total of 10 items for possible inclusion in the January, 1958, Annual Research and Engineering Progress Edition of the GE Review were submitted to Public Communication.

Internal distribution of certain periodicals, which the Plant Library no longer will circulate on a routine basis, was arranged.

SALARY AND WAGE ADMINISTRATION

There were 5 positions audited during August. Excluding Level 2 and 3 Managers, fixed rate and vacant positions, 58 of the 84 positions as of October 1, 1956 have been audited, or 150.1% of the two year goal on a monthly basis. A total of 71 audits have been completed of the current 177 incumbents.

Discussions with E. F. Bradford of Atomic Power Equipment Department concerning position reconciliation were held on August 1 and 2. No reconciliations were affected since that department is not yet on the Salary Plan but several positions will be reconcilable in the future.

A revised position guide for the Manager, Union Relations was reviewed and evaluated.

The Salary Plan booklet was received from Printing during the first week in August. Distribution of the booklet has been delayed however in order to include an introductory statement concerning the philosophy of the Exempt Salary Plan which is being prepared by the HAPO General Manager.

A second draft of the "Supervisor's Guide to Wage Administration," has been distributed for comments in the Fuels Preparation Department and Relations and Utilities Operation. Suggestions and comments are being reviewed.

Audits of the nonunit nonexempt jobs in the Manufacturing Operation involving considerable rewriting of job descriptions and some revaluation, is progressing according to schedule.

A preliminary analysis of the Sandia survey was made and distributed to interested persons in Fuels Preparation Department and to other HAPO wage administrators. Additional survey information resulting from the Atomic Energy Industry and Pacific Northwest surveys are expected within a few weeks.

The Cost-of-Living adjustment of 1.77% effective July 29, 1957 was placed into effect. This included calculation of the new rates and alteration of wage records. These changes were verified against the Personnel Accounting records.

Bar charts showing Fuels Preparation Department's relative standing with other components and with the Company in terms of various statistical data such as average position level, supervisors to supervised, reconciliation positions, etc. were updated as of mid-year and issued on August 6, 1957.

Revised salary status slips reflecting the August 1, 1957 salary structure change were prepared and were issued. Pay-Performance work sheets reflecting this change have been prepared and issued.

HEALTH AND SAFETY

	August	July
Disabling Injuries	0	0
Serious Accidents	0	0
Medical Treatment Cases	49	44
Medical Treatment Frequency	3.84	3.44
Employee Hours of Exposure	127,643	127,707
Orientation		
Presentations	2	2
Attendance	5	18
Inspections	26	15
Suggestions Evaluated	13	2
Medical Examinations		
Quota	76	64
Completed	66	89
Safety Meetings Attended	2	0

Program Development

The regular monthly safety meeting for FPD women employees was held on August 21. Subject material covered included health and security.

The Central Safety Council Inspection was completed on August 21. Overall conditions were found to be good.

Industrial medical examinations for FPD personnel were 86% of quota for the month of July. This was the result of an intentional reduction during the peak vacation period. Annual quota to date through July was 115% completed.

Services of the HAPO mask cleaning station are being utilized by FPD for the purpose of providing properly serviced respiratory protective equipment to department personnel.

Activities

August activity included contacts on the following items: Chemical flux, toxic solvents, heating plants, lock and tag procedures, grinding, new employee orientation, oil storage, publicity, production furnace, eye protection, elevator hazards, back flow prevention, color codes, chemical handling, safety shoes, safety meetings, traffic, walks, shop machines, inspections, acid line installation, steam cleaning, degreasing equipment, acid handling, lock out devices, third party inspection, materials handling equipment, respiratory protection, metal cutting, excavations, guarding, pressure equipment, utility support poles, safety valves, caustic disposal, noise control, scaffolds, high work, emergency escape, control equipment, painting, conveyor hazards, gas transfer, medical services, manifolds and compressed gas installations, panic hardware, ventilation, flammable liquids, materials storage, explosive gases, barricades, gas detection, job hazard breakdowns and safety rules, and equipment layout.

FIRE PREVENTION AND CIVIL DEFENSE

	July	August
Fires and Investigations	4	3*
Fire Loss	0	0
Inspections	27	11
Hazard Repo ts Submitted	5	2
Fire Prevention and Civil Defense Talks	5	0
Number of Employees in Attendance	56	0
Orientation Program		
Number of Presentations	3	2
Attendance - Non-exempt Employees	18	5
Attendance - Technical Graduates	1	0

*At 11:50 p.m., August 9, 1957 a small fire was extinguished without loss or damage in a melting pot in 313 Building.

At 3:45 p.m., August 14, 1957 a small amount of graphite powder ignited by a cutting torch was immediately extinguished by portable CO_2 extinguisher. No loss resulted.

At 1:43 p.m., August 22, 1957 a short in an electric motor on a duplicating machine caused motor to smolder and burn out. Electricity was shut off and no fire resulted.

Program Development

Planning for the October Fire Prevention month commenced with the purchase of promotional material, a series of planning meetings, and the appointment of W. L. Hampson as chairman of Home Fire-Safety Publicity Program and T. H. Whatley as chairman of In-Plant Fire Prevention Program.

General Activities

As result of a building survey, all fire extinguishers in 305 Building were replaced with modern equipment designed to combat any potential fire hazard.

Arranged for the transfer of two 50 lb. carbon dioxide wheel-cart fire extinguishers from 305 to 382 and 374 Buildings. These extinguishers will provide adequate protection for the large generators and fire pumps.

Recommended an Engineering study be made of the oil and scrap metal accumulation in the duct work under canning furnaces to determine the hazard and methods for correction.

Assisted Project Engineering with study of the area water system. Provided advice on fire code requirements for additional pumping and storage facilities.

Advised Manufacturing of the code requirements for using a railroad tank car for transporting, storing and dispensing methanol within the 303 Area.

Requested the modification of controls on the new fire doors in 313 Building, as tests revealed they would not close due to height of guard on counter weights.

Approved Engineering plans for modifying 303-K Building to permit storage of fork-lift trucks, providing the wiring and exhaust systems are made to conform with fire code requirements.

As result of our recommendations, rail joint insulators were installed on the railway spur adjacent to the methanol unloading facilities in the 303 Area as a safeguard against the explosion hazard.

Union Relations

Fifteen grievances were received of which 13 involved jurisdiction and two involved overtime. Six grievances concerned Davis-Bacon Act and the crafts represented were: Pipefitter, Millwright, Boilermaker, Electrician, Carpenter and Sheetmetal. Step II discussions were scheduled concerning these grievances for August 23 but at the request of the Union were postponed until September 4.

Overtime distribution and transfer procedure discussions were held with the Chemical Workers and further discussions were scheduled for September. Negotiations were conducted with the Powerhouse Operating Engineers concerning overtime distribution and an agreement was reached whereby the method of distributing overtime reverted to the system which was in effect prior to a change made during June. The June change was made at the insistence of the Union and proved unsatisfactory to most of the personnel involved.

Grievance Statistics:

A total of 15 grievances were received and 2 were scheduled for Step II discussion. The following is a report of grievance activity:

	Unit	Nonunit
Received this month	15	0
Received since 1/1/57	64	0
Step I		
Answer unsatisfactory	13	0
Answer satisfactory	2	0
*Pending time limit	8	0
Settled this month	4	0
Step II		
Discussed this month	2	0
**Pending time limit	1	0
Settled this month	4	0

*Includes Step I grievances which Council indicated desire to discuss at Step II but not scheduled, are considered settled at Step I at two months.

**Step II grievances which Council indicated their intention to arbitrate but no further action taken are shown settled at Step II after three months.

Union Relations (Continued)

Subject of August Grievances:
(15 Total)

	Mfg. Oper.	Eng. Oper.	Maint. & Power Oper.	Emp. Rel.	Fin. Oper.
Jurisdiction	0		13		
Overtime	2		0		

Subject of Grievances for 1957:
(64 Total)

Jurisdiction	8		29		
Overtime	7		3		
Absence	0		2		
Ratios	2		0		
Hours of Work	1		1		
Seniority	1		1		
Recognition	1		0		
Grievance Procedure	3		1		
Responsibility	1		1		
Transfer	2		0		

PERSONNEL PRACTICES - GENERAL

Analyses of the data obtained from tests given in the Secretarial Testing Program was completed and a report issued.

No security violations occurred during August in Fuels Preparation Department.

TECHNICAL PERSONNEL PLACEMENT

College Recruiting

As a part in maintaining close liaison and cooperation with the Centralized College Recruiting Programs, F. E. Jochen will assume the responsibilities as the Hanford representative to participate in recruiting with J. B. Holmes, Western Region Manager of Engineering Recruiting, at the University of Southern California U.C.L.A., San Diego State, California State Polytechnic and California Institute of Technology, which comprises the Southern California district.

Summer Program

No activities.

Experienced, BS-MS Recruiting

No technical or exempt personnel were added to the exempt roll this month. A total of 33 have been added to the exempt roll from October 1, 1956 to date. This represents a 100 per-cent achievement on the roll in relation to requirements as forecast for the year October 1, 1956 to October 1, 1957 (including attrition allowance) prorated for the first 11 months covered by this forecast.

The Fuels Preparation Department has received 14 applications to date as a result of its advertising activities. Ten of these applications have been for the position of Engineering Economist, one for the position of Electrical Engineer or Experimental Physicist, one for Metallurgical Process Engineer, one for the general position of Chemist, and one for a general position as a Nuclear Physicist but whose application was directed to HAPO as a result of other advertising. Thirteen have been signed-off because it was felt that their qualifications, background and experience were not in line with those required for the openings. One is still under consideration.

Exploration through the Operation Managers of F.P.D. was made to consider any possible candidates from the Fuels Preparation Department for several position openings in the Lamp Division, Nela Park. It was found that no candidates were available to recommend for these openings.

We received from the Chemical Processing Department the referral of two Level 4 Managers who were available for placement in other components. C.P.D. was notified that F.P.D. had no current openings commensurate with their qualifications, background and experience.

The small A.C. Motor and Generator Department has referred to the Fuels Preparation Department several manufacturing personnel who are available for placement in other components. Consideration is being given these cases.

Experienced, BS-MS Recruiting (9-1-56 through 8-31-57)

	Cases Considered-FPD	Invitations - FPD				Offers - FPD			On The FPD Roll
		Ext.	Visited	To Vis.	Open	Ext.	Acc.	Open	
Engineering									
Chemical	51	13	10	0	0	10	8	0	8
Electrical	35	13	8	0	0	5	3	0	3
Mechanical	46	22	18	0	0	12	6	0	6
Industrial	9	4	3	0	0	2	2	0	1
Metallurgical	21	12	9	0	0	3	3	0	3
Civil	8	0	1	0	0	0	0	0	0
Geological	0	0	0	0	0	0	0	0	0
Science									
Chemistry	21	2	2	0	0	1	1	0	1
Physics	17	4	2	0	0	0	0	0	0
Math-Stat.	5	1	1	0	0	0	0	0	0
Other*	160	15	16	0	0	11	11	0	11
Totals	373	86	70	0	0	44	34	0	33

*Included in the above statistics under "Other" are 7 F.P.D. qualified, experienced non-degree people upgraded from the non-exempt roll, and 2 qualified, experienced persons transferred from other HAPO components to the F.P.D exempt roll.

PhD Recruiting (9-1-56 through 8-31-57)

	F P D	
	August	To Date
Cases Considered:	7	109
To Be Interviewed:	0	-
Interviewed:	0	21

	F P D	
	August	To Date
Offers Extended:	0	1
Accepted Offers:	0	0
On The Roll:	0	0

Terminations and Transfers

Professor J. P. CoVan, assigned on the Summer Program, terminated employment with the Fuels Preparation Department this month to return to his teaching assignment at Texas A and M.

Terminations and Transfers, Technical and/or Exempt Personnel, (9-1-56 through 8-31-57)

	August	To Date
TERMINATIONS:	1	14
TRANSFERS TO OTHER COMPONENTS:		
Requests Received	0	22
Completed Transfers	0	7*
Closed Cases	1	13
Active Cases	1	--
Dormant Cases	1	--

*Includes three transfers within HAPO

EMPLOYMENT

Unfilled Requests for Personnel 22

Personnel Requirements Cancelled 0

Employees Added to the Rolls 5

Employees Removed from the Rolls 6

Transfer Data (Concerns Requests for Transfer - FPD)

Total Requests for Transfer Active at Start of Month	52
Number of Requests Received	11
Number Interviewed	3
Requests for Transfer Effected During Month	0
Requests for Transfer Active at Month's End	61

Procurement

Offers	5
Interviews	8
Request for Personnel Received	6
Transfers (all)	2
New Applications Received	9

Upgrades within FPD 6

Personnel Records

Letters to Outside Agencies Regarding Information 6

Perfect Attendance Recognition Awards 9

Service Recognition Pins 20 Year - 1 10 Year - 4 5 Year - 8

General

Supervisory Selection Interviews 5

EMPLOYEE BENEFITS & SERVICE

Employee Benefits Plans

Participation in the Employee Benefit Plans as of August 30, for the Department is as follows:

	Pension Plan	Insurance Plan	Savings & Stock Bonus
Fuels Preparation	99.6%	100.0%	55.4%

313 Building Tours

During the month arrangements were made for 3 employees from other Departments to tour the 313 and 305 Buildings. In addition arrangements were made for 11 FPD employees to tour 100 K reactor facilities.

Selective Service and Reserve Statistics

Total number of non-veteran employees subject to military service training through Selective Service System Total 33

Number Classified	1A	15
" "	2A	8
All others		10

Number of Technically trained and Engineering Personnel for whom deferments are currently being requested 8

Reservists Data - Total number of Reservists on Roll 61

Number of Ready Reservists	41
Number of Standby Reservists	20

Number of employees on Military leave 4

Suggestion Statistics

	Fuels Preparation Dep't. Aug.	Other Dep't. Aug.	Total Aug.
Received	34	4	38
Adopted	0	0	0
Net Savings	0	0	0
Cash Awards	0	0	0
Awards			
Net Savings	0	0	0

CUMULATIVE STATISTICS
(since Jan. 1, 1957)

Present Backlog	180	20	200
Received	403	123	526
Adopted	106	5	111
Net Savings	$19,301.32		
Awards	$2,751.00		

Geo S Barr
Manager - Employee Relations

END

DATE
FILMED
1/15/93