DECLASSIFIED

HW--49471

DE93 003513

HAN 65440

FUELS PREPARATION DEPARTMENT

Monthly Report

March 1957

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

MASTER

cks
DISTRIBUTION RESTRICTED TO U.S. ONLY

DECLASSIFIED

DECLASSIFIED

HW-49471

This document consists of
51 pages, ~~CONFIDENTIAL~~
~~CONFIDENTIAL~~ Series A

Classification Canceled (Change to
DECLASSIFIED)

By Authority of CG-PR-2

RM Item 10-1-92

By PM Eick 10-8-92

DG FLOW 10/12/92

MONTHLY REPORT

FUELS PREPARATION DEPARTMENT

FOR

MARCH, 1957

Compiled by

Fuels Preparation Department

April 23, 1957

Richland, Washington

CLASSIFICATION REVIEW FOR
DECLASSIFICATION BUT LEFT
UNCHANGED

By [Signature]

Date 5-17-73

U. S. AEC Division of Classification

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

Route To: P.R.No. Location Files
Route Date Signature & Date

J.E. Travis

Rec - 250

DECLASSIFIED

A-1

DECLASSIFIED

HW-49471

DISTRIBUTION

Copy Number

1	W. E. Johnson
2	R. H. Beaton
3	L. L. German
4	A. B. Greninger
5	D. M. Johnson
6	W. K. MacCready
7	H. M. Parker
8,9,10	J. E. Travis - AEC-HOO
11, 12	E. J. Bloch, Director, Division of Production Washington, 25, D. C.
13	G. D. Barr
14	E. Hilgeman
15	W. M. Mathis
16	P. H. Reinker
17	W. S. Roe
18	H. E. Berg
19	D. W. Haught
20	K. V. Stave
21	J. T. Stringer - S. M. Gill
22	H. F. Zuhr - R. S. Paul
23	J. W. Talbott - J. C. Williamson
24	Extra Copy
25	300 Files
26	Records Center

TABLE OF CONTENTS

General Summary	A-1 through A-6
Manufacturing Operation	B-1 through B-11
Engineering Operation	C-1 through C-11
Financial Operation	D-1 through D-9
Maintenance and Power Operation	E-1 through E-5
Employee Relations	F-1 through F-17

FUELS PREPARATION DEPARTMENT
MONTHLY REPORT SUMMARY FOR
MARCH, 1957

MANUFACTURING OPERATION

Five hundred fifty nine (559) tons of acceptable uranium fuel elements were produced which was 12 per cent above the amount forecast.

The manufacturing yield for solid fuel elements was 84.9 per cent. A manufacturing yield of 96.2 per cent was obtained for the "C" pieces fabricated during February and March.

During March the operating efficiency was 92 per cent, which was 4 per cent above the February experience. An all time high direct labor productivity record for solid and cored fuel elements was set during March.

At month end there was an eight-day supply of bare uranium cores in storage and a 1.0 month supply of finished fuel elements was available in the combined 100-300 storage areas.

During March an automatic load-unload device was installed on the cobalt tester. This device, conceived, developed, designed and fabricated by the Manufacturing Operation, delivers the fuel elements to the cobalt tester. After testing the fuel elements are automatically unloaded and segregated into acceptable and reject categories.

Two new types of uranium cores were processed.

In order to evaluate the effect of salt bath heat treating on the hydrogen content of uranium cores and the resultant fuel element braze porosity, one lot of alpha rolled cores was canned.

ENGINEERING OPERATION

Twenty-three ruptures in regular and solid material occurred during March. Seventy per cent of these were split type failures in C reactor occurring in locations coinciding closely with the near side control rod positions. Reactor operating conditions have been revised to prevent power peaks in the vicinity of control rods during startup. This revision should reduce this type of rupture frequency. Excluding the C reactor split failures, the rupture experience for the month was good.

Experience with I & E fuel elements continued favorable. No I & E ruptures have been experienced to date. Two hundred fifty tubes in C reactor have been exposed to normal goal exposure of 450-500 MWD/T. Because of this favorable performance IPD plans to expose all I & E elements in C reactor to 800 MWD/T. Several tubes of I & E pieces exposed in C reactor in areas where power peaking occurred were examined. No evidence of adverse effects were indicated.

DECLASSIFIED

DECLASSIFIED

HW-49471

Approximately 150 tons of 1/2" cored fuel elements have been charged into KE reactor to date with about 45 tons discharged at goal exposure. The first failure of this type of element occurred at 529 MWD/T and was classified as a cap failure.

A production test to evaluate optimum hole size for cored pieces operating at high powers (about 75 KW/ft) and utilizing enriched uranium was terminated. This test included four tubes of enriched pieces of solid, 3/8", 1/2" and 5/8" cored material. Three failures occurred in the 5/8" cored elements and due to the evolution of radioactive gas it was necessary to discharge the whole production test. Irradiation of identical tubes of normal uranium is continuing on schedule. Examination and evaluation of the discharged enriched pieces will be initiated as soon as the ruptured pieces have "cooled" sufficiently.

Four tubes of solid uranium canned in M-388 jackets has reached an exposure of 800 MWD/T without incident. Two tubes of solid M-388 jacketed pieces being exposed in special tubes to achieve 110 C outlet water temperature have reached an exposure of 170 MWD/T without incident. Thirty of a scheduled 122 tubes of M-388 jacketed solid and cored pieces have been charged to date.

Approximately three tons of low hydrogen dingot fuel elements were charged during March. Critical inspection showed about one per cent rejection of canned fuel elements for defects due to hydrogen evolution. This rejection rate is lower than current standard ingot pieces. Nineteen more tons of this material have been scheduled for delivery. Canning of these 19 tons should allow complete evaluation of braze porosity characteristics of canned dingot material.

Preliminary data obtained from the first 20 centrifugally cast normal uranium I & E elements show satisfactory grain orientation and grain structure in comparison to standard pieces.

Contacts with cable cladding vendors were continued and specimen fuel elements have been requested as an indication of the supplier's ability to clad uranium pieces. Contract negotiations have been initiated with Battelle to carry out exploratory tests studies relative to extrusive cable cladding.

All authorized projects are proceeding on schedule. Final acceptance tests were underway in 306 Fuel Element Pilot Plant during March. Acceptance tests will be completed and operation initiated in April.

FINANCIAL OPERATION

Representatives from the Company's Traveling Auditor Staff completed a general audit of the Department this month. Although no formal reports of their findings have yet been issued, there is no indication that any unsatisfactory conditions were noted. During the period of their audit, the FPD Financial Operation's Auditor spent approximately one-third of his time assisting them.

The first revision to the Property Record Unit Catalog was issued and distributed to other HAPO components. Subsequent revisions to this catalog will be made approximately every three months.

A charting program which includes key activities of the Department was completed. The 38 charts which have been prepared will be brought up to date each month and will be maintained by the Measurements Specialist and available to any Department personnel having use for them.

Revised Summaries of Operating Costs were developed this month and will be issued in the future the day following date of Trial Balance. Considerable attention was given during the month to distribution of costs within the Manufacturing Operation. Detailed procedures were prepared which clearly define methods to be followed in the coding of direct and indirect labor. With the implementation of these procedures on April 1, the reporting of more accurate unit costs will be possible. The monthly Product Unit Cost Report and the reporting of cost analyses were completely revised this month. From these a more comprehensive appraisal of the status of the business by management can be made.

Plans were made during the month in regard to inventory and accountability for unrecorded shop stocks. Inventories are to be completed by the end of next month and based on the quantity and kind of materials inventoried, decision as to appropriate action will be made.

MAINTENANCE AND POWER OPERATION

The consolidated budget for the Maintenance and Power Operation's Cost Reduction Program was prepared. This budget establishes a reduction goal of 4.6 per cent of the operating budget for the period fourth quarter FY 1957 and all of FY 1958. This budget was prepared as a result of the initiation of a formal cost reduction program within the Operation. The program was initiated to recognize the saving contributions of all individuals, encourage continuous cost reduction thinking on the part of all individuals, stimulate participation in the Suggestion Plan, improve job security, and increase job content.

EMPLOYEE RELATIONS OPERATION

The 1957 "Productive Training" program was discussed with each level 3 Manager with full cooperation and acceptance of the philosophy that FPD should be a self-training organization with instructors being selected according to interests and abilities from within the various operations

The centralized "Management Orientation" program has been reduced to a one day presentation covering the aspects of management, Company philosophy and relations with the AEC. The management skills portion of the program will be provided through personal discussions with functional specialists within the Department.

Distribution of the FPD Employee News Letter was initiated during the month and provides another channel of communication with employees as recommended by the HAPO Five Year Relations Program.

DECLASSIFIED

DECLASSIFIED

HW-49471

At month end there were 12 Technical Graduates on rotational assignments within the Department. The number of available assignments was reduced to 17 during the month. During the first quarter of CY 1957 a monthly average of 11 trainees have been on assignment and two permanent placements have been made from PDP.

The revised Secretarial Compensation Plan was implemented.

Two grievances were processed during the month -- both involved jurisdictional matters. A grievance procedure for use by independent non-exempt employees was developed and approved during the month. Publication of this procedure is in process.

The Department continued to operate without any disabling injuries. There were no serious accidents or fires during the month. Medical treatment frequency decreased from 3.38 in February to 2.86 in March.

Participation in the following plans for FPD personnel was as follows:

Pension Plan		Insurance Plan		Savings & Stock Bonus	
February	March	February	March	February	March
99.9	99.9	99.7	99.7	51.5	51.3

A total of 79 suggestions were received during March and 21 suggestions were adopted.

Since September 1, 1956 experienced BS/MS recruiting activity has yielded 188 candidates of interest to FPD for consideration and 31 employment offers have been extended which has resulted in 24 acceptances, including 7 yet to report.

PERSONNEL STATISTICS:

Number of employees February 28, 1957	757
Number of employees March 31, 1957	757

<u>OPERATION</u>	<u>EXEMPT</u>	<u>NON-EXEMPT</u>	<u>TOTAL</u>
General	1	1	2
Manufacturing	63	286	349
Engineering	39	26	65
Financial	16	23	39
Maintenance & Power	38	233	271
Employee Relations	16	15	31
Total	173	584	757

L. L. German
GENERAL MANAGER
FUELS PREPARATION DEPARTMENT

FUELS PREPARATION DEPARTMENT
MANUFACTURING OPERATION

March, 1957

I. CURRENT OPERATIONS

A. Production and Productivity

1. Statistics

	8" Solid	8" De-pleted	8" Cored	En-riched	I & E	Total
<u>Current Month's Production</u>						
Acceptable Fuel Elements Produced (Tons)	484	9	59	4	3	559
As % of Forecast Production	120	133	98	67	14	112
As % of Past 3 Months' Production	109	-	169	200	23	113
Average						
As % of Past 12 Months' Production	117	-	246	100	300	126
Average						
As % of June, 1957 Goal	116	-	72	67	38	95
As % of June, 1958 Goal(500 MWD/Ton)	177	-	37	10	2	83
As % of June, 1958 Goal(750 MWD/Ton)	486	-	236	17	1	125
% of Forecast Achieved - Last Fiscal Quarter	102	-	107	-	63	101
% of Forecast Achieved - Last 4 Fiscal Quarters	102	-	92	-	51	101
Production Adjusted for In-Process Inventory	486	9	45	4	2	546
<u>Productivity (Adjusted for In-Process Inventory)</u>						
Pieces - Man-hour Direct Labor	6.5	-	4.8	4.3	1.0	-
Forecast	-	-	-	-	-	-
Previous Month	5.8	-	4.7	4.7	2.1	-
<u>Operating Efficiency</u>						
Current Month (%)	-	-	-	-	-	92
Forecast (%)	-	-	-	-	-	90
Previous Month (%)	-	-	-	-	-	88
<u>Manufacturing Yield</u>						
Current Month (%)	85	84	80	82	41	
Forecast (%)	82	82	80	80	52	
Previous Month (%)	84	-	78	84	35	
Bare Uranium in Storage (Tons)						254
Canned Uranium in Storage (Tons)						536
Uranium Utilization (%)						95.1

DECLASSIFIED

DECLASSIFIED

HW-49471

2. Activities

a. Production

During March the Manufacturing Operation worked on a two-shift basis with four canning lines for each shift. Five hundred fifty nine (559) tons of acceptable uranium fuel elements were produced which was 12 percent above the amount forecast in HW-47897-RD. In this forecast, the Manufacturing Operation was scheduled to produce twenty two (22) tons of I & E fuel elements. However, the interim conversion of equipment to permit the continuous processing of I & E fuel elements on the 313 Building production line was incomplete. For this reason the I & E scheduled production was postponed and the heavier, higher-yielding solid fuel elements were substituted. Consequently I & E production was below forecast while solid production was above forecast. It is planned to produce both March and April requirements of I & E during April.

b. Manufacturing Yield - Solid Production

The manufacturing yield for solid fuel element production was 84.9 percent compared to 83.6 percent for February - the highest solid fuel element yield since November, 1954. The canning reject rate decreased from 1.9 percent in February to 1.0 percent in March. For the year of 1956, the average canning reject rate was 2.8 percent so the March experience represents a significant gain. These factors contributed to this improvement:

- (1) Training and encouragement of production workers by supervision which has improved product quality.
- (2) Use of vibrators on all canning furnace jacks which reduced resistance to core insertion during the canning process.

A decrease from 1.4 percent to 0.7 percent was noted in the bad weld reject rate. Wide bead rejects have been reclassified into the poor bond rather than the bad weld category. This accounts for a portion of the decrease, however, most of the decrease can be attributed to the lack of tru-line production during the month. Because the male projection prevents the use of normal welding procedures, tru-line welding always has resulted in increased bad weld rejects. Although the inclusion reject rate of 2.2 percent represented a decrease of 1.0 percent from the February rate, inclusions remained above the 1956 average of 1.7 percent. Rust and other foreign materials from the frequent addition of new canning sleeves contributed to the inclusion problem.

The miscellaneous reject rate increased from 2.4 percent in February to 3.1 percent. Pitting of the fuel element jackets by caustic caused this increase. During the sleeve cleaning process, caustic becomes entrapped between the end wafer and tube wall of distorted sleeves. This caustic boiled out during the canning process and caused pits and corrosion of base and sidewalls of the fuel element jackets.

b. Manufacturing Yield - Solid Production - continued

Bond and void rejects increased from 2.4 percent to 2.9 percent. However, the March reject rate was below the average of 1956 reject rate of 7.1 percent. Brittle bonding is responsible for most of the increase.

c. Manufacturing Yield - Cored Production

The manufacturing yield for cored fuel elements was 80.4 percent compared to 78.2 percent for February. The yield-improvement pattern for cored material was similar to that described above for solid production.

d. Manufacturing Yield - Enriched Production

A manufacturing yield of 82.4 percent was obtained for the fuel elements enriched to 0.94% U²³⁵. These fuel elements are shorter than the regular solid fuel elements. Consequently equipment was not available to vibrate the can-sleeve assemblies during the canning process. Considerable porosity was found in the bonding layer and the bond test reject rate was 6.0 percent as compared to 2.7 percent for regular solid production. In all other categories the enriched material reject rates were comparable to the regular solid production.

e. Manufacturing Yield - I & E Production

A manufacturing yield of 41.4 percent was obtained for a small quantity of I & E fuel elements which were processed through the Finishing Operation. Due to the small quantity processed, no conclusions were drawn for the 6.8 percent improvement over the February yield.

f. Direct Labor Productivity

All-time high direct labor productivity records for solid and cored fuel elements were made in March. Each month since the start of 1957 the Manufacturing Operation has established higher productivity records than for the previous month for these fuel element models.

g. Other Activities

During the month, the following Special Tests and Process Work Requests were completed in the canning facilities:

<u>PWR No.</u>	<u>Description</u>
191	To evaluate Al-Si clad caps for regular production.
212	To evaluate a method for reducing the number of thermal analyses required.
227	To determine: (1) the acceptability of Pickle Machine #1 for production work and (2) the optimum conditions for operating this machine.

DECLASSIFIED

DECLASSIFIED

HW-49471

g. Other Activities - continued

<u>PWR No.</u>	<u>Description</u>
238	To complete preliminary evaluation of ultrasonic surface test.
240	To compare porosity in bond layer of Alpha rolled Dingot and Ingot fuel elements.
241	To attempt to produce Bond Test Standards.
242	To provide fuel element cores for IP-56-A-86MT (Dingot evaluation).
243	To determine the effect of degreasing on brittle bonding.

During March, a total of 2,075 "C" fuel elements were fabricated in the special canning facilities using the cold canning method. Since the assemblies were not bonded with AlSi, rejects that occurred from the canning process were easily stripped and recanned. 3.6 percent of the cores were rejected for mechanical damage and could not be salvaged. Since 0.2 percent of the assemblies were rejected and were not stripped and recanned, a manufacturing yield of 96.2 percent was obtained for the "C" pieces fabricated during February and March.

At month's end there was an eight-day supply of bare uranium cores in storage and a 1.0 month's supply of finished fuel elements was available in the combined 100 - 300 storage areas.

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

	<u>Pieces</u>
8" Solid	23,285
8" Cored	4,140
6" Cored	362
I & E	<u>1,056</u>
	28,843

One railroad car containing approximately 26 tons of uranium scrap was shipped to National Lead Company during March. The distribution of the shipment in pounds is as follows:

Solid Scrap	42,894
Defective Scrap	7,614
Enriched Scrap	<u>1,019</u>
Total Pounds	51,527

3. Conversion Costs

March estimated conversion cost per solid fuel element is about 10 percent lower than the February actual cost. Yield improvement and increased production are responsible for the lower unit cost.

DECLASSIFIED
B-4

DECLASSIFIED

3. Conversion Costs - continued

The March estimated conversion cost per cored fuel element is about 12 percent lower than the February actual cost. Increased production and yield are responsible for the lower unit cost.

B. Plant Problems and Incidents

1. General

During March the operating efficiency was 92 percent which was 4 percent above the February experience. In February about 60 percent of the lost time was attributed to equipment difficulties as compared to 39 percent in March.

2. Overhead Conveyors

Overhead conveyor downtime was reduced about 50 percent from the January experience. Much of this improvement was made on the component parts conveyor by timely lubrication, reduced conveyor speed, installation of carrier guides on pick-up and release stations, proper alignment of conveyor drive units, and assignment of a maintenance man to the conveyors on a continuing basis.

The chains for conveyors which supply component parts to canning lines 1 - 2 and 5 - 6 were removed from the tracks, degreased, inspected and worn links replaced. A spare chain has been received. This will permit unit replacement of a chain, thus reducing maintenance downtime for chain repair.

3. Electronic Testing Equipment

The electronic equipment continues to perform in a satisfactory manner with a minimum of downtime.

4. Penetration Etch Machine Basket Replacement

In May, 1956, authorization was obtained on appropriation request 56M-125, to replace the baskets used on the penetration etch machine. The baskets purchased against this requisition were designed to eliminate marred surfaces which result from loading the present baskets and to increase the capacity of the machines by 50 percent. A prototype of the new basket had been tested on the machine and found to be satisfactory. However, when the new baskets were installed on the machine, sufficient etching was not achieved to clean the fuel elements. Studies by the Manufacturing Operation have shown that through grounding the fuel element and allowing the static charge, which is built up on the surface of the fuel element to bleed off to the ground, the reaction will proceed with the new basket in the same manner as with the old basket. The design of the new basket is being modified to provide this grounding characteristic.

5. Cap and Can Preparation Machine

The cap and can machines currently installed in the 313 Building were provided on Project CA-514, with the installation being completed December, 1955.

DECLASSIFIED

5. Cap and Can Preparation Machine - continued

When the No. 2 machine was placed in operation wear of the brass parts on the machine - namely the brass rail, brass hangers, brass slide guides, and brass pusher dogs - resulted in inclusions being deposited in the aluminum cans. Action was taken in April, 1956, to replace the rail with a phenolic rail; to replace the brass hangers with celastic coated brass hangers; to replace the slide guides with graphite impregnated phenolic; and to cover the pusher dogs with aluminum face plates. This action resulted in the elimination of the brass inclusions and served as a temporary modification pending a study to determine if the brass on the machine should be replaced with stainless steel.

The machine was operated continuously, excepting some equipment failure time, for the period August, 1956, to the middle of March, 1957, at which time the machine was shut down for a Class A overhaul. Operation of the machine provided the following data: (1) The phenolic rail was satisfactory in that it served both as a carrier rail and as a safety device for preventing misalignment of the machine when baskets were crushed between the rail and the partitions due to the malfunctioning of the equipment. (2) The celastic coated hangers lasted approximately 7 to 8 months before wearing through and necessitating the replacement of the coating. The cost of celastic coating is such that it is cheaper to replace the celastic coated hangers with stainless steel hangers. (3) The graphite impregnated phenolic that was used for the slide guides has been found to be satisfactory and will be continued in use. (4) The aluminum face plates on the pusher dogs have unsatisfactory wear characteristics and will be replaced with stainless steel pusher dogs.

The following modifications will be made to both machines: (1) The installation of a new degreaser system. (2) The replacement of the brass hangers with stainless steel hangers. (3) The removal of unnecessary framing on the machine to provide more clearance for the baskets. (4) The installation of a by-pass valve on the hydraulic system. (5) Since the degreaser on the No. 1 machine is not the mirror image of the degreaser on the No. 2 machine, it may be necessary to rebuild some parts of the No. 1 machine degreaser in order to achieve satisfactory cleaning of the components.

6. Load-Unload Device for Cobalt Tester

During March an automatic load-unload device was installed on the cobalt tester. This device, conceived, developed, designed and fabricated by the Manufacturing Operation, delivers the fuel elements to the cobalt tester. After testing, the fuel elements are automatically unloaded and segregated into acceptable and reject categories.

C. Operating Plans

1. Bare Uranium Metal Quality

During March there was little change in reject rates associated with uranium quality. Seam and striation rejects remained at less than one (1) percent. Transformation test rejects were constant at about 0.1 percent, except for the lot of depleted cores which had a reject rate of 8.4 percent.

1. Bare Uranium Metal Quality - continued

Cored fuel elements, which had foreign material and upset metal on the surface of the fuel elements, were received from the vendor. In cases where the pickling process failed to remove the material, the cores were rejected. The National Lead Company has been requested to take corrective action.

2. New Uranium Products

Two new types of uranium cores were processed during March:

Type A - uranium cores machined from metal cast at Fernald which contains both Mallinckrodt and Fernald derbies.

Type B - depleted uranium cores.

Type A has shown no evidence of being different from regular Fernald metal.

Type B was canned by the standard "F" process and exhibited a higher braze porosity than standard material. The ingots, from which the Type B was made, were cast several months ago and stored outdoors. This unprotected storage may have contributed to increase hydrogen content in the surface metal.

3. Alpha Rolled Uranium

In order to evaluate the effect of salt bath heat treating on the hydrogen content of uranium cores and the resultant fuel element braze porosity, one lot of alpha rolled cores was canned. Subsequent testing revealed that braze porosity was much lower than experienced with heat treated cores.

4. Damaged Aluminum Cans

As a result of packing material storages at Alcoa, 55,000 cans were shipped from the factory without can separators in the cartons. Discoloration and abrasion of can walls resulted. Statistical inspection sampling and processing tests indicate that about 75 percent of these cans will be acceptable when processed through the component cleaning operation.

5. Unmilled Aluminum Caps

The current aluminum cap height tolerance is ± 0.005 inches. This specification has made it necessary for Alcoa to mill the cap and resulted in increased cap costs.

In an effort to reduce component parts costs, Alcoa was requested to investigate impact extrusion of caps to ± 0.015 inch tolerance on overall height. This tolerance will provide satisfactory fuel element control during the facing operation. In March an experimental order of 5,000 unmilled caps were received. Statistical inspection results reveal an acceptable height control for these extruded, unmilled caps.

DECLASSIFIED

6. Thermal Analysis Control

In the past, thermal analyses have been made every four operating hours to determine the aluminum-silicon composition in the canning furnaces. Based on each thermal analysis result, additions of aluminum or enriched aluminum-silicon alloy were made. An extensive study of this procedure has shown that the variations in thermal analysis procedure and in the aluminum-silicon make-up were too large to assure accurate control of the furnace metal composition. A process control system has been developed to control composition of make-up metal and to analyze furnace metal immediately before and after enriched aluminum-silicon alloy additions.

7. Weld Reject Classification

A recently completed study of wide weld beads reveals that most of these rejects are caused by poor heat transfer due to brittle bonding. Therefore, wide weld bead rejects are now classed in the poor bond reject category and are charged to the canning line on which the reject occurred. This change permits quicker recognition of brittle bond problems.

8. Solubility of AlSi in Sodium Hydroxide

The Manufacturing Operation, in a recently completed study, determined the optimum concentration of sodium hydroxide solution used to dissolve AlSi from canning sleeves. Improved sleeve cleaning will result from the proper use of this information.

9. 313 Building Interim Conversion for I & E Production

In November plans were made by the Manufacturing Operation for the interim conversion of the 313 Building equipment for the production of I & E fuel elements. In carrying out these plans the following have been completed: (1) 12 baskets for processing of I & E caps on the cap and can machine were obtained; (2) 8 carriers for use on the zig-zag conveyor system were purchased, 5 for the component parts conveyor and 3 for the No. 1 canning line sleeve conveyors; (3) 12 sets of carrying tongs were purchased; (4) a manual quench tank has been set in position for use in the canning of I & E fuel elements with only the cost of the relocation being charged to the appropriation request; (5) the cam system required for converting the welders for both the internal and external weld has been completed with 2 of the production welders being modified to handle the April production schedule; and (6) a bond and penetration tester was borrowed from the Testing Methods Operation and installed in position in the production line for testing the internal bond. All of the foregoing work was in accord with the November planning.

Additional work which has been performed includes: (1) the modification of the pallets for the storage of I & E fuel elements; (2) the purchase and installation of a stamper; and (3) the modification of the manual component preparation equipment to provide for caustic etching of the can components.

Other planned changes are being reviewed to determine our immediate needs when considering the postponement of Building 313 conversion for I & E production.

D. Financial Matters

Non-regulated blue coveralls were issued to Finishing and Inspection personnel in lieu of SWP coveralls. This change will eliminate the cost of regulated laundering and monitoring which was required for the previously issued SWP coveralls. Also, consumption of coveralls was decreased since each employee is issued two pairs of coveralls per week instead of a clean pair every day.

E. Employee Relations

Members of the Operation were treated for 20 minor injuries for a frequency rate of 3.52.

The frequency of exposures greater than 200 mrad per two-week period was 0.0. The frequency of exposures greater than 100 mrad per two-week period was 10.5.

One security incident and no security violations were reported in March.

II. PERSONNEL MATTERS

A. Visits and Visitors

W.M. Mathis attended the Feed Materials Planning Meeting in Washington, D.C.

C.A. Burgess, R.O. Budd, and D.D. Stone attended the Pacific Northwest Quality Control Conference in Portland, Oregon.

W.M. Hunt, R.R. Watts, and F.J. Doer of the Purchasing Operation visited the manufacturing facilities.

B. Reports of Inventions

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 March, 1957.

C. Meetings

Members of the Operation attended 22 information meetings, 25 staff meetings and 24 safety and security meetings.

D. Significant Reports Issued

1. Routine

<u>Number</u>	<u>Title</u>	<u>Author</u>	<u>Date</u>
HW-48801-RD	Canning Operation Monthly Report	FW Grubb	3-26-57
HW-48775-RD	Monthly Report, Finishing & Special Products Operation	HC Money	3-26-57

DECLASSIFIED

D. Significant Reports Issued - continued

DECLASSIFIED

1. Routine

<u>Number</u>	<u>Title</u>	<u>Author</u>	<u>Date</u>
HW-48890	Monthly Report, Quality Control Operation, FPD, February 1957	KV Stave	3-1-57
HW-48905	Monthly Production Report FPD Manufacturing Operation Month Ending February 28, 1957	HE Berg	3-6-57
HW-48959	Uranium Quality Control Analytical Results	GB Hansen	3-14-57

2. Non-Routine

HW-48407	Radiation Work Procedures, FPD	RO Budd	3-1-57
HW-48843	Eccentric I & E Cores	HE Berg RE Olson	3-5-57
HW-49140	Large Bore I & E Cores	HE Berg RE Olson	3-20-57
HW-49141	Special Uranium Products	HE Berg RE Olson	3-20-57
HW-49142	I & E Process Standards	AC Barkoff	3-7-57
Confidential Description of Present Accountability Undocumented System - Fuels Preparation Department		HE Berg	3-18-57

Wm Mathis
Manager-Manufacturing

WM Mathis:RIB:rhs

8" CANNING REJECTS BREAKDOWN BY MAJOR CLASSIFICATIONS

LEGEND

NOTE : - 1956 FIGURES
INCLUDE BOTH SOLID
AND CORED.

DECLASSIFIED

DECLASSIFIED

HW-49471

ENGINEERING OPERATION

March, 1957

VISITORS: None

TRIPS

<u>Name</u>	<u>Company Visited</u>	<u>Contact</u>	<u>Date</u>	<u>Reason</u>
P.A. Carlson	1957 Nuclear Congress Pittsburgh, Pa.		3-8/16	Obtain information on fuel development
J.W. Talbott	Feller Eng'g. Co. Pittsburgh, Pa.	K Feller	3-15/16	To confer on presses
	1957 Nuclear Congress		3-10/14	To attend meetings
J.T. Stringer	Aluminum Co. of America, Pittsburgh	N.L. Wickes	3-10	Discuss fuel element technology
	1957 Nuclear Congress		3-10/15	To attend meetings
S.M. Gill	American Society for Quality Control Portland, Oregon		3-21	Present paper
O.W. Rathbun	NLO, Cincinnati, Ohio	W.T. Warner	3-29	Confer with other sites on obtaining and processing data on fabrication and irradiation of fuel elements.
R.S. Paul	Los Alamos Scientific Lab.	G. Tenney	3-20/22	Present paper at AEC non-destructive test- ing group meeting
	SNT Convention Los Angeles, Calif.		3-25/26	Attend meeting and present paper
C.L. Frederick	Los Alamos Scientific Lab.	G. Tenney	3-20/22	Present paper
	Curtiss Wright Co. Magnaflux Corp. McKenna Industries Branson Corp., Los Angeles, Calif.	J.C. Smack L.B. Haller A.G. McKenna P.K. Bloch	3-25/27	Contact non-destructive testing equip- ment vendors

PERSONNEL

Process Engineering

<u>Name</u>	<u>Title</u>	<u>Nature of Change</u>	<u>Date</u>
A. Russell	Rot. Tech. Grad.	Transferred in	3-7-57
E.F. Baroch	Engineer	Military Leave	3-1-57

Materials Engineering

S.B. Crisp	Secretary	Transferred in	3-11-57
------------	-----------	----------------	---------

Testing Methods

R.M. Smith	Technician	Transferred in	3-11-57
	Trainee		
D.A. Yetter	"	Transferred out	3-11-57
G.L. Waldkoetter	Engineer	Leave of Absence	3-1-57

Design & Projects

F.J. Mollerus, Jr.	Rot. Tech. Grad.	Transferred in	3-8-57
--------------------	------------------	----------------	--------

Drafting & Files

R.W. Hutton	Draftsman	Leave of Absence	3-14-57
-------------	-----------	------------------	---------

PROCESS ENGINEERING

Regular Production Rupture Experience

Twenty-three ruptures occurred during the month in regular solid and cored production material. The classification of the ruptures was as follows: 17 split, 3 unclassified, 2 side-other, and 1 cap. The ruptures were distributed as follows: 17 in C Reactor, 2 in KE, 2 in H, and 1 each in F and DR. Sixteen of the 17 split failures occurred in C reactor making a total of 23 split-type failures in C Reactor in two months. These split failures occurred in two specific locations in C Reactor, which coincided closely with the near side control rod positions. It is postulated that this rash of failures is associated with the generation of high (20 per cent above normal) specific powers in the vicinity of the control rods during hot reactor startups. Reactor operating conditions have been revised to prevent this power peak and approximately 250 tubes in the rupture prone area have been pushed and replaced. Excluding the C Reactor split failures, the rupture experience for the month was very favorable.

I & E Program

Experience with the I & E fuel elements continued favorable. To date no ruptures have occurred in approximately 250 tubes of I & E pieces exposed to normal goal exposure in C Reactor (450-500 MWD/T). Because of the favorable performance,

DECLASSIFIED

IPD plans to expose all I & E pieces in C Reactor to 800 MWD/T. Several tubes of I & E pieces were examined which were in the areas of C Reactor where power peaking occurred. No evidence was found that the I & E pieces were adversely affected although solid pieces in adjacent tubes showed evidence of core splitting.

The one tube of enriched I & E pieces undergoing a run-to-rupture test at a maximum specific power of 95 KW/ft was discharged at an exposure of 1000 MWD/T without incident because no control tubes were associated with the test. An additional three tubes of enriched I & E pieces and enriched solid controls were charged during the month.

Canning studies are in progress to define the amount of relaxation in dimensional tolerances that can be permitted. Relaxed dimensional tolerances will result in reduced core costs.

The dip canned I & E piece suffers about a 2 per cent decrease in conversion ratio over an equivalent hot pressed I & E piece of the same outside diameter, because the hot press assembly process can utilize thinner jacket walls and consequently greater uranium core diameters. Studies are in progress and materials being procured to obtain an additional 25 mils diameter increase in the lead dip I & E process by using thinner cans (but still guaranteeing a 20 mil can wall thickness after canning), and decreasing the AlSi braze layer thickness.

The eccentric position of the I & E fuel element in the process tube caused by the greater diameter of the piece causes undesirably high water temperatures at the top of the tube particularly in the K Reactor. The easiest solution to this problem is to introduce a mixing piece in the fuel element charge. Some nine different designs of mixing pieces are currently being fabricated for evaluation in the flow laboratories.

Cored Fuel Element Program

Approximately 150 tons of 1/2 inch cored fuel elements have been charged into KE Reactor to date with about 45 tons discharged at goal exposure. The first failure in this type of piece occurred at 529 MWD/T and was classified as a cap failure. Because the rupture was gassing, it was canned and is now awaiting further examination. To date there have been no reports of stuck charges with the 1/2 inch cored material such as was experienced with the 3/8 inch cored material.

A production test to evaluate the optimum hole size for cored pieces operating at high powers (about 75 KW/ft.) using enriched uranium was terminated. The test included four tubes each of enriched uranium, solid, 3/8", 1/2", and 5/8" cored pieces. During the month three failures occurred in the 5/8 inch cored pieces apparently contradicting the theory that the larger core hole size should give better performance. All three ruptures evolved large volumes of radioactive gas and presented such a serious operating problem that the entire enriched production test was discontinued. Irradiation of identical tubes of normal uranium control pieces (0, 3/8, 1/2, 5/8 inch core hole) will be continued as scheduled. As soon as the ruptured pieces cool sufficiently they will be examined to determine the cause of the failures.

Ni-Al Alloy Program

Four tubes of solid uranium canned in M-388 jackets and being exposed at H Reactor to a goal exposure of 900 MWD/T have reached an exposure of 800 MWD/T without incident.

Two tubes of solid cores canned in M-388 jackets and exposed in special tubes at C Reactor to achieve a 110 C outlet water temperature have reached exposures of 170 MWD/T without incident. One unclassified failure in a standard control piece being exposed under similar conditions to the M-388 jacketed pieces occurred.

Thirty of a scheduled 122 tubes of M-388 jacketed solid and cored pieces scheduled for charging in KE, C, B, and D or DR Reactor were charged.

Process Specifications

Process specifications for lead dip canning both solid and cored natural uranium fuel elements were issued during the month.

E-N Loading

The possibility of using dip canned I & E metal pieces and either dip canned or unbonded I & E pieces for spike and fringe enrichment in the reactors is being explored. Material for test irradiation is on order and development work is in progress to define the assembly process.

KER and K Through Hole Programs

Preliminary runs with aluminum dummy pieces have been completed in one of the KER tubes and a charge of standard diameter, cored, ribbed startup fuel elements has been delivered. Additional startup charges for two additional KER tubes will be available when the preliminary runs are completed. Massive and wafered I & E, large diameter pieces will not be required before May.

A capsule containing three 1.8 inch outside diameter cored (3/4 inch hole) fuel elements canned in M-388 alloy components and with attached solid 2S aluminum ribs was charged into the KE through hole on March 1. The pieces are operating at a specific power of 60 KW/ft. and have reached an exposure of about 180 MWD/T without incident.

MATERIALS ENGINEERING

Low Hydrogen Dingots (PT IP-56-A-86MT)

The first shipment of low hydrogen dingot fuel elements (~ 3 tons) was received and canned in late February. Critical inspection showed about 1 per cent rejection of the canned fuel elements for bond test and other defects due to hydrogen evolution, a rejection rate lower than current standard ingot pieces. All of the acceptable canned fuel elements in this lot (V82) were charged into DR reactor on March 22, 1957. Twelve additional tons of low hydrogen dingot uranium have been received at Hanford during the latter part of March and will

DECLASSIFIED

HW-49471

be canned shortly. Seven more tons are enroute from Fernald. The canning of these 19 tons should indicate whether the present MCW process of producing low hydrogen dingots results in minimum braze porosity after canning.

Centrifugally Cast Uranium

Preliminary data obtained on samples of the first 20 centrifugally cast normal uranium I & E fuel element cores show that a double beta heat treating cycle reduces the grain size of the as-cast pieces from approximately 1.05 mm to 0.45 mm average diameter (20 X method). The grain size observed on the heat treated pieces is thus equivalent to that observed on typical beta heat treated ingot production. There appears to be near-random grain orientation in both the as-cast and the beta heat treated conditions. FMPC has cast the master alloys for use in the high silicon and high carbon cast uranium fuel elements requested for study at HAPO, and has prepared 36 of these fuel elements, ranging up to 2000 ppm silicon and 1400 ppm carbon. Some of these show very desirable grain structures. These pieces will soon be received at HAPO and will be used to check reactivity in addition to structure.

Development will continue in order to obtain uranium that can be easily and economically produced by centrifugal casting and appears to have the characteristics desired in an optimum fuel element. It is planned also to evaluate the use of iron and manganese for grain size control, as is done by the British.

Extrusion of Uranium

During March there was one alpha phase extrusion run performed at Bridgeport Brass. This was of hollow rod for I & E type fuel elements. As-extruded samples are being examined at Hanford.

Bare fuel elements from the third and fourth extrusions of solid rod are being shipped to Hanford and an 8-tube production test is planned to determine the warp characteristics of alpha extruded uranium under irradiation.

No further alpha phase extrusion is planned until July of this year.

Gamma phase extrusion has developed to the point where MCW is casting the alloys requested on about a two-month delivery schedule.

Aluminum Components

Most of the outstanding I & E components were received during the month of March so that there are no longer any programs being held up by overdue component orders. Some difficulty was encountered with tube wall thickness upon inspecting recent I & E spires, and it now appears that about 30 per cent of the "O" M-388 I & E spires are out of dimensional specification and cannot be used. This will not cause any immediate delays, but the effect on future schedules is still not clear.

An order was placed with Harvey Aluminum by the Manufacturing Operation for 100,000 thick caps to be used for blunt nose fuel elements. This is the first cap order that Harvey has won on a competitive basis since they became an approved vendor for caps.

Received during the month also were 5000 C Reactor I & E cans from Harvey. These pieces are yet to be inspected, but on the basis of previous information, no difficulties are anticipated.

Fuels Engineering Pilot Plant

The portion of project work performed by the lump sum contractor was completed as of March 19. Project activity at the present time consists of plant force installation of items which originally were not included in the lump sum contract, and which are essential to operability, improvements to operating efficiency, or new process requirements. It is planned that the pilot plant will start operation during April.

Equipment and New Process Development

I & E washer fuel elements prepared by Hanford Laboratories Operation personnel were machined with one of the 306 Fuel Element Pilot Plant turret lathes. These fuel elements have low bending resistance and it is necessary to machine them with a minimum length extending from the chuck. Several I & E washer fuel elements were broken while being machined on Monarch lathes because of the excessive length extending from the chuck. None of the fuel elements machined with the turret lathes were broken. However, some difficulty was experienced with the control of overall length. This difficulty results from the variation in thickness of the 43 uranium washers and 44 aluminum-silicon bonding layers comprising the fuel element core and end braze, and is not a function of the machining process.

Tooling for blunt nose tru-line fuel elements was developed in cooperation with the Manufacturing Engineering Operation, and tested in the 306 Fuel Element Pilot Plant. The favorable results of these machining tests resulted in the recommendation that standard boss-type caps be used for this fuel element, rather than well-type caps with the female tru-line feature impacted in. This will result in significant monetary savings.

A cutting tool tipped with tungsten carbide, which was developed for use in the 306 Fuel Element Pilot Plant, has been installed on the No. 3 Acme Gridley lathe in 313 Building. Present results indicate that finish quality has been improved and tool life increased 8 to 10 times.

Design and drawings are complete for the conversion of the 306 Fuel Element Pilot Plant radiographic equipment from film to the xeroradiography process.

TESTING METHODS

Process Fuel Element Testing

The problem of calibrating and extending the sensitivity of the Penetration Testers is being studied jointly with Quality Audit. Calibration standards are established by measuring the minimum residual can wall after caustic stripping of elements which gave instrument signals equal to those obtained from the proposed standards. Confidence in a given standard increases with the number of correlations of actual AlSi penetrations of a given depth obtained in the results

DECLASSIFIED

of caustic stripping. The current study shows that false correlations may be obtained from caustic stripping when the apparent penetration is due to or accompanied by a void. The void causes a larger signal on the tester than one due to just AlSi at that depth. These false correlations can be avoided by continuing the caustic stripping below the nominal calibration depth (currently 20 mils) and probing to reveal any voids. The presence of voids below the penetrations in the calibration standards may also be revealed by autoradiographic techniques.

Earlier stripping correlations for a primary 20 mil standard are not in agreement with the current tests. The new measurements indicate that the minimum residual wall thickness of the primary standard may be as low as 16-17 mils rather than 20 mils. It is suspected that the "void" effect was not recognized in the earlier tests. Experiments are underway to resolve this discrepancy and to establish new 20 and 25 mil penetration standards.

I & E Fuel Element Testing

A new prototype automatic testing conveyor has been set up in the 313 building for production use. It is now being used for the I & E internal bond and penetration tests. These tests are now made on the outside surfaces with the existing process testers but could be added to the new automatic unit later.

The pilot plant automatic I & E Bond and Penetration Tester has been moved to the 306 Building. Some difficulties have been experienced with the pulser for the Bondtester and it has required circuit changes which are still being evaluated. The automatic conveyor for the Transformation and Metal Quality tests has been wired and checked out, but the crystal mounts and reject mechanism remain to be completed before it is moved to 306.

Efforts are continuing to increase the discriminating ability of the inside I & E penetration tester. A new type of probe assembly is being devised to give increased resolution for penetrations and, it is hoped, reduced sensitivity to voids and other irregularities in the braze layer. This new sensing coil has a small U shaped magnetic core with the core tips covered by a 5 mil thick stainless steel shoe. The shoe will ride directly on the internal surface of the fuel element. Several mechanical problems must yet be solved to adapt this to high speed automatic operation.

Methods Development

Evaluation of the ultrasonic surface inspection method for bare uranium is continuing. Another 250 Fernald ingot cores have been inspected to define the pertinent testing variables. The effects of instrument gain and gate settings and transducer positioning are being studied. It has been found that some energy is being coupled to sub-surface defects. This accounts for some of the difficulty in obtaining complete correlation with visual examinations. Very complete ultrasonic measurements were made on three cores which are now being prepared for sectioning and polishing to establish the exact form of the detected defects.

Work has continued on two phases of the measurement of bonding characteristics by localized surface temperature measurements through electromagnetic induction. Experimental measurements have been made on localized hot spots produced by resistance heating of a special can assembly. The slope of the output voltage versus hot spot temperature curve is not as steep as that obtained previously for uniform can wall temperatures, but is still quite usable. The second part of the work this month has been directed towards establishing various criteria which will be useful in the design of induction thermometry equipment. In particular, various coil forms, coil form materials, and coil configurations are being experimentally evaluated.

Some studies in ultrasonic testing were completed and reported in HW-48989, "Some New Techniques in the Use of Ultrasonic Attenuation in Testing Uranium Fuel Elements," C.L. Frederick. This report describes a possible new testing method and a proposed instrument which will be developed to further explore and demonstrate these ideas. This may permit establishing an upper bound on uranium grain size and may also allow detection of abrupt discontinuities in ultrasonic attenuation properties which may be correlated with undesirable fuel characteristics.

Hanford Test Reactor

Metal testing proceeded routinely and technical assistance was provided for several special tests.

Forthcoming Meeting

H. L. Libby will present the paper "Basic Principles of Eddy Current Testing" and "Nickel Depth Meter" at the Symposium on Non-Destructive Test Developed in the Field of Nuclear Energy, Chicago, April 16-18, 1957.

DESIGN & PROJECTS

Status of Projects

CG-646 - Modification of Pickling Machines: Operation of the pickling machine with the new pickle tank control has been satisfactory during the month of March. Because of non-project work being done at the same time as the pickle machine modification, the east machine had not been made available to us by April 1. Although all the work on the project is presently running slightly behind schedule, it is expected that the completion date will be met.

CG-676 - Fuel Element Pilot Plant: Fixed Price Contractor completed his work on schedule by March 15. All the furnaces had been started by March 25 and have operated satisfactorily since that date. ATP's have been completed and minor startup work is in progress. It is anticipated that all project work will be completed during the week of April 8 and the facility turned over to the operating forces.

By letter dated March 4, 1957, the AEC authorized the purchase of one Acme-Gridley lathe which will be installed in the 306 Building and used for development work associated with I & E machining. It is planned to move this lathe to 313 Building after the completion of the development work.

DECLASSIFIED

CG-703 - Advanced Engineering FY-1959 Budget Preparation: Advanced Engineering for 1959 Plant Acquisition and Construction Budget preparation was completed and the budget was submitted as document HW-48906.

CG-713 - Conversion to I & E Lead-Dip Fuel Elements: Informal information received from the Commission during the month indicates that only preliminary design for this project will be authorized at this time. It is estimated that about \$50,000 will support design for about 6 months.

CG-736 - Provide Office Space - 300 Area: This project proposal was returned to G.E. on March 14 unapproved. As an alternate solution to our office space problem, project proposal CG-746 - Relocation of Dormitory to 300 was prepared and submitted to the Commission on April 1. Estimated project cost - \$93,000 plus the value of transferred capital property for about \$24,000.

CG-737 - Electric-Pneumatic Control System for Canning Area - 313 Building: By letter, the AEC requested economic justification for this project. In answer to this request FPD stated that the project was justified for reasons other than economy, but that a preliminary evaluation indicated a pay-out period of about one and one-half years. The need for additional economic justification was questioned.

300 Area Evacuation Warning System: On March 12 representatives of FPD met with AEC personnel to discuss a more austere evacuation warning system than was proposed by G.E. in project CA-687. This project was initially prepared at the request of the Commission and was considerably more elaborate than they desired. At their request we are drafting an Informal Request which will be a much reduced scope over the original proposal.

IR-210 - Oil, Paint and Solvent Storage Facility: Gray and Osborne, Consulting Engineers from Yakima, Washington, have indicated that the design portion of this work will be completed by April 12, 1957.

Additional Steam Generating Capacity for 384 Building: Plant and Equipment Analysis Report for this project has been prepared and is being reviewed. Preliminary scope drawings are in preparation. The broad criteria for this proposal is to provide an additional 60,000 pounds per hour boiler at a cost not exceeding \$600,000.

Research and Development

Cable Cladding: Contacts with representatives of Loewy-Hydropress and Schloemann were maintained during the month. We have proposed to both suppliers that they provide specimen fuel elements which would demonstrate the ability of their equipment to satisfactorily clad uranium. No answers have been received from Loewy-Hydropress. Personal contacts made with representatives of Schloemann brought out their confidence to supply a press which would clad fuel elements according to our products specifications. At this time we believe that they may be optimistic and are continuing to pressure them for samples.

DRAFTING & FILES

Principal Jobs in Drafting

306 Building	Test Heads for Ultrasonic, Bond and Penetration Testers Switchgear for I & E Conveyor Xeroradiography tray modifications
313 Building	Pickle Machine Elevator Universal Fuel Element Buffer Canning Furnace Fittings Revised Cans, Caps, Fuel Elements, Sleeves
384 Building	Scope - Addition to building
3703 Building	Ventilation
3717 Building	Ventilation
300 General	As Builts - Maps; Telephone; Fire Alarm Proposed 300 Area Fire Station Scope - Cable clad fuel element attached plug profiles

Drawings Produced

New	49
Revised	25
Small Charts	23
Large Charts	13
Miscellaneous	56

ADVANCED ENGINEERING

General

Interim studies on the economics and feasibility of various fuel element designs for use in organic cooled reactors were undertaken. The fuel element survey information continued to be collated.

An exploratory program of cable cladding HAPO fuel elements was agreed to between Battelle Memorial Institute and FPD. The details are being incorporated in contract form.

Natural Uranium Concentrate Costs, 1957-1966

The AEC has established a guaranteed price for uranium ore which varies from \$6 to \$14/pound of contained uranium depending on vanadium oxide content and allowances for mine development, production bonus, grade premium and haulages. This pricing schedule is effective until 1962 at which time the AEC will purchase concentrated uranium oxide at private mills at \$8/pound until 1966. Based on

these values it is estimated that the cost of uranium concentrate as it enters Fernald will be \$13/pound of contained uranium in 1957; \$11.20 in 1962, and \$9.45 in 1966. It is interesting to observe that the AEC has decided that this portion of the uranium fuel cycle is to be provided entirely by private industry. From these and other data we will develop 5-10 year fuel cost forecasts.

Effect of Cold Work on the Irradiation Behavior of Uranium

Consideration is being given to the possibility of using Sylvania I & E fuel elements at Hanford. SEP is currently developing an alternate recovery cycle which substitutes a swaging operation for a machining operation. They anticipate that this will increase their overall yield. However, swaging imparts cold work to the uranium core which may affect irradiation stability adversely. Savannah River personnel, in recent discussions, indicated that they have arbitrarily decided that a maximum of 5 per cent cold work is acceptable for SRP fuel elements.

A literature search revealed that experiments on the effect of cold work on the irradiation growth rate of rolled and beta heat treated uranium have been conducted by Argonne. In these experiments small rods (3/16" O.D. x 1" l.) were irradiated in NaK-filled capsules in the MTR to exposures ranging from 300 to 5000 MWD/T. The rods were rolled at 600 C, beta-heat treated, and rolled a second time at 300 C to produce 5-25 per cent cold work in the specimens. The data show that cold work may have a pronounced effect on irradiation growth. Specimens reduced 5 per cent in area were found to increase in length 0.05 mils/MWD/T exposure or 4 per cent for an exposure of 800 MWD/T.

Although the data may not apply in the strictest sense to swaged elements, they indicate that cold worked fuel elements are not acceptable for routine Hanford irradiations.

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 March, 1957, except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

NONE

Manager - Engineering

PH Reinker:mbs

FINANCIAL OPERATION

MARCH, 1957

AUDITS AND PROCEDURES

Auditing - Over one-third of the month was spent on assignment with the Traveling Auditors in another department. During their general audit at HAPO the four members of the Traveling Audit staff were assisted either continuously or for a substantial portion of the time by nine of the HAPO Internal Auditors. J. L. Ingersoll, Audit Administrator from the Auditing Department in Schenectady particularly commented on this unusually high degree of cooperation. The auditors' review of Fuels Preparation Department activities was completed late in the month.

Auditing plans within the Department are to rely substantially on working papers of this recently completed general audit as the primary basis for several audits which are scheduled to be completed before end of the audit year, July 31, 1957. Report on the Audit of Management of Capital Assets will be issued after the Traveling Auditors working papers are available and following supplemental work on appraisal of physical control of Plant and Equipment.

Office Procedures - The following procedures activities were completed during the month:

1. Design of the canning weekly operating report and establishment of integrated procedures required for its issuance. This report, designed for each Canning Supervisor, summarizes information concerning actual production, operating performance (yield and efficiency), comparison with forecast production, cost of rejects, productivity, and comparison of actual labor, direct material, and unit costs with standard.
2. Development and approval of revisions in the internal procedures and applicable policy guides concerning administration of the suggestion plan. The revisions were necessitated by recent AEC administrative changes.
3. Detailed review and subsequent suggestions concerning establishment of check preparation and control procedures within the Department. Office Procedures Specialists of each department jointly developed the basic features of the decentralized check preparation procedure which became effective April 1, 1957.
4. Evaluation of two formal suggestions applicable to procedures and forms functions.

Work was started or continued on the following procedural activities during the month:

1. Design of improved time distribution forms for maintenance activities and participation in considerations for improving the timeliness and usefulness of IBM prepared work order listings.

AUDITS AND PROCEDURES (Continued)

2. Design of a key-sort record card for salary administration exempt records.
3. Review of manufacturing cost coding structure and time distribution practices.

Forms Control - An unusually high percentage of forms orders involved new designs. Considerable time was spent on design of forms for small tool physical inventory, chart records, cost reduction reports and a summary manufacturing daily production report.

GENERAL ACCOUNTING OPERATION

General Ledger - Procedure - In order to strengthen cash controls, procedures were revised whereby payment will be initiated by the Managers of Finance for Travel and Living Expense, Payroll Deductions, Pension Refunds, Insurance Refunds, and the Component's Share of the cost of Company Employee Benefit Plans. Internal procedures were published outlining the Fuels Preparation Department course of action for making payment, safeguarding check forms, and establishing detailed journals, ledgers, and other original documents supporting payments. This procedure became effective April 1, 1957.

A procedure was completed during March outlining General Accounting responsibilities in regard to collection of revenue derived from services rendered on Special Requests. These services include:

1. Special tests involving source and fissionable materials and pile construction materials for off-site agencies.
2. Miscellaneous services for the Commission, for other contractors of the Commission, or other Government agencies.

The first draft of the General Ledger procedure manual was completed and a copy forwarded to the Specialist - Auditing and Procedures for review prior to the final typing.

Delegations of Authorities - Revised listings incorporating all changes during the period January 1 through March 31 were submitted to Security, Purchasing and Stores, Transportation and Technical Library.

Reports - Level 4 managers were furnished copies of the February Financial Statistics. To date, eighteen managers have replied that the cards are informative and have requested receipt of the information monthly.

The format for the monthly reconciliation of the account "Deductions From Employee Pay" has been revised to reflect an analysis of the activity in the account rather than just a balance of each deduction. The new format will assist the Personnel Accounting Operation in the maintenance of their records.

GENERAL ACCOUNTING OPERATION (Continued)

Supervisor Orientation Program - An outline of General Accounting responsibilities was prepared for new supervisors. Topics shown on the outline will be discussed with each new supervisor by the Specialist in charge.

Travel and Living - Pre-printed duplimate masters were designed for the Travel and Living Summary Report. This will save three hours typing during the peak period, thereby improving reporting time.

In the future, rather than notify personnel by telephone, a formal notification will be mailed to persons having cash advance balances outstanding more than ten days. If the balance is not cleared within an additional seven days, a notification will be mailed to the employee's supervisor. It is hoped that this procedure will expedite settlement of outstanding balances.

Attendance at Professional and Trade Society Meetings during March consisted of 13 trips totaling \$1,758. This amount exceeds the previous high which was recorded in November consisting of five trips totaling \$1,045. March expenditures and commitments amount to \$1,402 for the Engineering Operation and \$356 for the Manufacturing Operation. Total FY-to-date expenditures and commitments amount to \$4,411, which is 85% of the budget.

Certain scheduled trips are being canceled due to the limited amount (\$789) of funds remaining in the fiscal year budget.

Funds for Off-Site Training Courses and Seminars committed in March amount to \$720. Remaining funds have been allocated to courses to be attended in May and June. The budget for FY 1957 amounts to \$1,300.

Travel and Living Statistics are summarized as follows:

	<u>March</u>	<u>February</u>	<u>Increase or (Decrease) over February</u>
Travel Advances to Employees:			
Balance at beginning of month	\$ 5 664	\$ 4 728	\$ 936
Advances to employees	3 672	4 050	(378)
Billings from other HAPO components	<u>3 171</u>	<u>3 314</u>	<u>(143)</u>
	<u>12 507</u>	<u>12 092</u>	<u>415</u>
Less:			
Travel, living and conference expenses reported by employees	5 515	4 625	890
Cash refunded by employees	2 429	1 803	626
Billings to other HAPO components	<u>475</u>	<u>-0-</u>	<u>475</u>
	<u>8 419</u>	<u>6 428</u>	<u>1 991</u>
Balance at end of month	<u>\$ 4 088</u>	<u>\$ 5 664</u>	<u>\$(1 576)</u>

GENERAL ACCOUNTING OPERATION (Continued)

	<u>March</u>	<u>February</u>	<u>Increase or (Decrease) over February</u>
Outstanding Travel Advances to Employees:			
Current	\$ 3 885	\$ 4 132	\$ (247)
Outstanding over 15 days	<u>203</u>	<u>1 532</u>	<u>(1 329)</u>
Balance at end of month	<u>\$ 4 088</u>	<u>\$ 5 664</u>	<u>\$(1 576)</u>
Number of expense reports submitted	27	24	3
Number of Cash Advances	26	26	-0-

Twenty-seven expense reports amounting to \$5,496 were submitted in March, as compared to 24 amounting to \$4,625 in February.

Reimbursements - Documents reviewed for reimbursement included 127 work orders and 212 purchase requisitions.

Organization and Policy Guides and Advices - A program was initiated in March for periodic review of FFD Advices. The first review will be made six months after the first date of issue, and annually thereafter. Advice 1.1.2, Delegation of Routine Authorities, is the first to be reviewed under this program. Time was spent reviewing guides issued by other Departments and Operations, as well as the HAPO Guides, to insure agreement.

During March, seven OPGs and five Advices were prepared for management review; one Advice was issued and three were revised. A status report of OPGs and Advices follows:

	<u>Not Issued</u>			<u>Total to Be Issued</u>	<u>Per Cent Not Issued</u>
	<u>Unwritten</u>	<u>In Review</u>	<u>Total</u>		
OPGs	8	8	16	65	24
Advices	<u>10</u>	<u>8</u>	<u>18</u>	<u>124</u>	<u>14</u>
Total	<u>18</u>	<u>16</u>	<u>34</u>	<u>189</u>	<u>18</u>

Plant and Property Accounting - The following Appropriation Requests were processed during March, 1957:

57-FP-23	Replace Peerless 6 x 6 Hacksaw	\$3 750
57-FP-24	Procure Two Potentiometers	1 400
57-FP-25	Procure 25 Steel Bins	1 600
57-FP-26	Magazine Load and Unload for Transformation Test Tanks	4 000

GENERAL ACCOUNTING OPERATION (Continued)

Other documents processed during March were as follows:

Excess Documents	5
Property Disposal Requests	6
Plant and Equipment Transfers	5
Purchase Requisitions Reviewed	229
Commodity Codes Assigned	35
Tagging Requests Issued	12
Capital Work Order Closing Reports Issued	13

The status of the FY 1957 Financial Plan for Equipment Not Included in Construction Projects as of March 31, 1957 is shown below:

	<u>FY 1957 Financial Plan</u>	<u>Obligated and In Process</u>	<u>Uncommitted Balance</u>	<u>Percent Obligated & In Process</u>
Engineering	\$ 39 175	\$ 37 956	\$ 1 219	97
Maintenance & Power	99 290	65 037	34 253	66
Manufacturing	<u>253 535</u>	<u>117 359</u>	<u>136 176</u>	<u>46</u>
Total	<u>\$392 000</u>	<u>\$220 352</u>	<u>\$171 648</u>	<u>56</u>

At the request of the Maintenance and Power Operation, the Budget Status Report for Equipment Work in Progress will be reported by level 4 operation. The Manufacturing Operation has also indicated this would be of value to them.

Budgets for Equipment Not Included in Construction Projects and Plant Acquisition and Construction were prepared and forwarded to Contract Administration. Since submission, funds requested for equipment in FY 1959 have been increased by \$150,000 to \$786,150. This is due to the reclassification by Contract Administration of Project B-92F, Mechanization of the 306 Pilot Plant, as equipment rather than a general plant project.

Plant and Property Accounting has issued the first revision to the HAPO Property Record Unit Catalog. Copies of this revision, adding 17 items to the index and 80 to the catalog, were made available to other HAPO components. It is planned to publish further revisions approximately every three months.

The completion date for the first phase of the reconciliation of uninstalled plant has been extended to April 8, 1957. Custodians were approximately 90% complete on the original target date of April 1, 1957.

An estimate was obtained for the 300 Area plant and equipment valuation for both Fuels Preparation Department and Hanford Laboratories Operation as of December 31, 1956, and December 31, 1952. The information was required in the justification of the project covering additional steam capacity for the 300 Area.

GENERAL ACCOUNTING OPERATION (Continued)

A request was received for classification of work involved in the relocation of a dormitory to the 300 Area. Of a total estimated project cost of \$93,000, \$50,000 was classified as expense and chargeable to Expense Portion of Construction Projects.

Work has commenced on the revision of the present Property Record Unit Catalog in order that it correctly identify retirement units that must be reported and recorded in the plant records. This is necessary from the standpoint of both capitalization policy and property control. Work is also proceeding on the organization of property records into established property record units.

Other - Auditing - Assistance was given the Traveling Auditors in their review and investigation of Fuels Preparation Department records. The audit was started during the week of March 4 and completed during the week of March 25.

MEASUREMENT PROJECT

General - The quarterly measurement progress report was started during March with completion of this report scheduled for the week of April 23. The report, which is in three parts, will measure the progress of the Department in relationship to its established goals and other measurement indices.

A chart book covering the major department activities was prepared for the General Manager. The charts will be maintained on a current month basis by the Financial Operation - Measurements.

Measurement charts were used by the General Manager in reviewing Department progress to date with the level 3 and 4 managers.

Activation of the maintenance measurement task force has been delayed until May 1 pending the completion of an orientation and training program. The primary purpose of this program is to further educate level 4 managers in the value and use of measurements, with particular emphasis on the establishment of goals and programs.

The index for measuring the utilization of coal has been revised effective May 1, 1957. The current index of evaporation rate will be replaced by an index of actual boiler efficiency compared to an established standard.

PERSONNEL ACCOUNTING OPERATION

Our January report stated that the feasibility of converting the present system for preparing weekly nonexempt payrolls to one comparable to the present system of preparing monthly exempt payrolls, was being studied. Data Processing is currently working on the necessary programming and have advised that we should be able to put the new procedure into effect around the middle part of May.

AEC approval of the new Secretarial Compensation Plan was received and the clerical work necessary to put the plan into effect was accomplished.

PERSONNEL ACCOUNTING OPERATION (Continued)

A thorough audit was made of the Personnel Accounting Operation by members of the Traveling Auditors' Staff. Considerable time and effort on the part of our employees was required in cooperating with the audit.

One hundred insurance claims for Medical Expense and Weekly Sickness and Accident benefits were received during March. Ninety-nine insurance claims were processed and forwarded to Metropolitan Life Insurance Company. Checks totaling \$6,814, covering 89 insurance claims were received from Metropolitan and distributed to employees.

PRODUCT COST OPERATION

Cost Accumulations - March costs were reported on the new Summary of Operations reports designed for level 3 managers. These reports were issued one day after date of Trial Balance.

Process Technology costs were charged to the fuel elements on the basis of each contributor's efforts on the individual elements rather than allocated on direct labor as done in the past. This resulted in a greater charge to I & E and a reduced charge to Solids.

Expense code books were issued to all employees who have need of them. Revisions and additions will be issued when the need arises.

Accounting procedures have been written for each level 3 operation, end function, work order control, and other cost functions. Some revisions are being made, and some accounting methods are yet to be agreed upon before the procedures can be issued.

The program of contacting level 4 managers and level 5 supervisors is under way. Tours have been made through the 313 and 306 Buildings to better acquaint the cost employees with the components they are dealing with and to meet employees with whom they discuss costs via telephone. Continued emphasis will be placed on this program in the forthcoming months.

Visits were made to the cost groups of HLO, CPD, IPD, and R & U to investigate their accumulating and posting methods. The purpose of the trips was to adopt any improvements in their posting methods that would enable us to accumulate costs in a more expeditious manner. Experiments are being made to see if a procedure can be developed that would enable us to reduce posting time and issue reports sooner.

Inventories - Essential Materials - On March 21, 1957 a survey of the 300 Area coal pile was made by the Construction Engineering Operation. The coal volume is presently being converted to tons by the survey group. Receipts and consumption have been calculated to adjust the quantity on hand as of March 21, 1957, to midnight, March 31, 1957. Results of the physical inventory will be distributed in April.

PRODUCT COST OPERATION (Continued)

Beginning with the month of March, project-incurred transportation charges (HW freight) on coal receipts will be liquidated when billed rather than as coal is consumed. The unliquidated portion of previous freight charges on receipts was included as consumption in the current month.

Reporting requirements for the Atomic Energy Commission have changed several quarterly reports to semi-annual reports. These reports are:

Analysis of Current Use, Stand-By and Excess Inventories
Summary of Current Use and Stand-By Inventory Transactions
Changes in Allowance for Loss or Stores Inventory

The following captions have been added to enable a more accurate cost liquidation to the end product:

019	Aluminum Cans I & E	M-388
024	Aluminum Cans 9½	M-388
030	Aluminum Caps for 9½	M-388
031	Aluminum Caps for I & E	M-388

A decrease is anticipated in the number of reject cans for which we received credit from the vendor. Prior month's reject cans have included cans that were dented, marred, or scratched during parts preparation. Beginning with the current month, cans damaged in the process will be charged to the process at first cost less salvage. Credit will be requested for only those cans not meeting specifications after initial inspection.

Special Materials - The regular quarterly physical inventory of special materials was conducted as of March 31, 1957. The physical inventory resulted in the following increase of platinum material and weight:

2.70 grams	2 Discs recovered
.90 gram	gain in weight

Shop Inventories - Several meetings were held during the month in connection with the control of unrecorded shop stocks. The material in question is in the physical custody of three custodians and is located in 27 different storage areas. Custodians have agreed to conduct a physical inventory of the material beginning in the month of April and progress to completion prior to the end of the fiscal year.

SS Materials - A meeting was held during the month with SS Accountability personnel to discuss the problems of reporting, recording and disseminating of inventory data. Financial Operation's reporting requirements were set forth for a period of the next six months in the form of a letter to SS Accountability. Letter included requirements by date, classification and type of material.

Notification of price changes on scrap shipments were received from the Atomic Energy Commission in the month of February. Principal change was a decrease in credit on normal UM of 20 cents a pound.

PRODUCT COST OPERATION (Continued)

Current Month Product Cost Report will include in Raw Material uranium located on the floor that has not yet entered the pickling process. Prior reports included such material as In Process.

Budgets and Cost Analysis - In conformance with budget instructions and due dates, all reports were submitted as scheduled. The budget is now complete except for Report No. 1703-B, "Proposals for Research and Development," which is now being prepared and will be ready for submission before the April 15 due date.

A detailed study was made of the coding problems which currently exist within the Manufacturing Operation. The study indicated that some revisions and further clarification were necessary before an accurate distribution of labor to the various products is realized. With this in mind, a detailed procedure was written which clearly defines direct and indirect labor and outlines in detail how labor should be distributed for each step of the operation. This is to become effective April 1, 1957.

Considerable time has been spent in developing a ledger for measurement purposes. The ledger will provide a central location for all information and calculations used in the preparation of the measurements statement. In addition, subsidiary ledgers have been prepared for work-in-process and finished production. These subsidiary ledgers have been prepared in a manner which enables identification of each element of cost. This presentation will facilitate the monthly analysis of variations in cost.

Initial presentation of the monthly product unit cost analysis revealed that the present method of presentation was too detailed to be useful for managerial purposes. With this in mind, efforts were directed toward development of a report which would provide the basic data for analyzing and explaining variances in actual cost from standard and goals and yet would indicate, in less detail, areas in which cost reduction efforts should be directed.

Manager - Finance

WS Roe:whm

MAINTENANCE AND POWER OPERATION

MARCH, 1957

I. RESPONSIBILITY

There were no changes in responsibility during the month.

II. ACHIEVEMENTS

A. Statistics

	<u>March</u>	<u>February</u>
Average Steam Generated (M lbs/hr)	56.8	69.0
Maximum Steam Generated (M lbs/hr)	79.0	104.0
Total Steam Generated (M lbs)	42 247	46 350
Coal Consumed (Tons)	2 768	3 146
Evaporation Rate (Steam/# coal)	7.63	7.37
No. Boilers on 2 3 4 3 2 3 2 3 2		
Date of Change 1 4 7 8 10 12 23 29 31		
Sanitary Water from 3000 Area (Million Gallons)	65.8	59.0
Total Water from 3000 Area (Average Rate - gpm)	1 474	1 463
Soft Water from #3 Well (M Gallons)	13.3	10.9
Water from #2 Well (M Gallons)	.30	.30
Peak Water Consumption for 24 Hours (Million Gallons)	2.4	2.4

<u>Duplicating Process</u>	<u>No. of Orders Processed</u>	<u>No. of Copies Made</u>
Multilith	449	191 999
Verifax	66	1 902
Ozalid	28	1 554
		195 455*

Productive Maintenance Program

Outstanding orders as of 2/28	122
Orders issued in March	28
Orders completed in March	58
Outstanding orders as of 3/21	92

Materials and Property

Declarations of Excess issued	2
Stock Adjustment Requests issued	0
Spare Parts Decrease	0

*Revised cut-off date figure shows 3 weeks' production.

Fire Responses

HAPO	2	Loss	None
Construction.....	0	Loss	None
Private.....	0	Loss	None
Outer Area.....	0	Loss	None

B. Operating Experience

The average time for portable radiation instrument repair was 1.17 hours. This is an all time low for labor cost per portable instrument. Due to the reduced labor cost, a further cost reduction has been made on the billing charges for portable instrument repair.

Twelve thermistor assemblies were installed in equipment for use in Project Whitney.

There were 150 experimental fuel elements leak tested prior to use in the 305-B Reactors.

There were 605 portable tools checked and 46 repaired.

An improved thermobalance system was assembled for the Chemical Research Operation. The unit will be used in oxidation reduction studies of uranium compounds. This equipment measures and records the weight of a known sample while it is being oxidized or reduced in a furnace at a controlled temperature. The system consists of an analytical balance, control circuits, a two-pen recorder, furnace, gas manifold system, temperature controller, and recorder. The response of the original thermobalance system was not fast enough to accurately follow the gas-solid reactions being studied.

Work on Project "Cad" is 60% complete. Instrumentation consists of 3 counting systems with automatic timers and associated equipment. Maximum reliability is required since the instruments will be used to count short "half life" isotopes.

The Consultant from the Betz Company recommended changes in the sampling and analyses of water from the soft water system in the Powerhouse. Revisions to the present methods have been established. These changes will improve the accuracy of the test results and reduce the time required to obtain analyses.

Wooden guard rails along all walks in the 300 Area parking lot have been removed to eliminate a safety hazard due to splintering. These have been replaced where necessary with pipe and chain rails for continued pedestrian protection.

The ceiling of the 3703 Conference Room was covered with acoustical tile and the floor was resurfaced with rubber tile.

The foyer of the 3703 Building was remodeled to provide an attractive entrance way to the departmental executive offices.

The Fire Responses were:

Hanford Laboratories Operation, 329 Building - The transformer on a fluorescent light fixture shorted and started to smoke.

Hanford Laboratories Operation, 325 Building - A gas burner backfired, igniting loose paper and the paper lining of a hood.

C. Equipment Experience

The automatic collator for the Duplicating facility has been received. This equipment is awaiting installation pending the arrival of a trained serviceman from the vendor.

A small portion of the brick lining in No. 5 Boiler has fallen out, permitting some of the glass wool insulation to drop into the ash pit. The boiler will continue in service until its scheduled overhaul in May.

The Positive Ion Accelerator operated for 18-1/2 days. The lost time was the result of the routine cold trap cleanout and failure of a solenoid coil within the machine.

The Negative Ion Accelerator operated 20 days during the month. It was out of service 1 day for cold trap cleaning.

D. Inventions and Improved Methods

Nickel films of 1 micron and 3 micron thickness are under test for use in scintillation windows. If the porosity of this material is satisfactory, it will replace present 2 micron Aluminum Foil scintillation windows.

The interruptor high voltage supply has now undergone 250 hours of testing with no performance irregularities to date. This device is a small DC relay which converts DC supplied by the dry cells to 20 cycle AC for utilization by the operating components of thyacs and other portable instruments. This type of supply is less expensive than smaller models, has increased reliability and prolongs battery life.

E. Costs and Savings

The consolidated budget for the Maintenance and Power Operation's Cost Reduction Program was prepared. This budget establishes a total cost reduction goal of \$153,775 for the 4th Quarter of FY 1957 and FY 1958. This budget was prepared as a result of the initiation of a formal cost reduction program within the Operation. This program was initiated to

recognize the saving contributions of all individuals, encourage continuous cost reduction thinking on the part of all individuals, stimulate participation in the Suggestion Plan, improve job security, and increase job content.

G. Special Reports Issued

Document HW-48755, FY 1958 Budget Study, Expansion of 300 Area Sanitary and Process Water Supply System - by R. G. James and T. H. Whatley.

I. Housekeeping

As a result of "Operation New Broom," a thorough inspection of the 300 Area grounds, shops and offices was made. The inspection revealed several items requiring attention. These items were corrected.

III. PERSONNEL

A. Organization Changes

G. H. Van Nortwick, Engineer, Facilities Study, Plant Engineering Operation, resigned.

C. V. Quimby, Supervisor, Craft Training and Manual Writing, Plant Engineering Operation, passed away.

B. Safety, Security and Radiation Experience

Medical Treatment Injuries	15
Frequency Rate	3.42
Disabling Injuries	0
Near Serious Accidents	0

No cases of radiation overexposure were reported.

No security violations were reported.

C. Meetings and Training

Round Table - Staff	31
Safety and Security	33
Information	0

The electrical theory course was presented to Manufacturing Maintenance electricians at 5 meetings. The total attendance was 79.

Two 5 hour courses on the Penetration Testers were given to Manufacturing Maintenance instrument personnel. Total attendance was 51.

The Powerhouse operators and the Specialist, Power, received instruction and training in boiler water conditioning from the Consultant of the Betz Company.

A course on Brown Electronik Recorders was completed. This course, consisting of four 2 hour sessions, had a total attendance of 19.

A handwritten signature in cursive script, appearing to read 'E. Hilgeman', written in dark ink.

Manager
Maintenance and Power

E. Hilgeman:JPF:mkm

EMPLOYEE RELATIONS OPERATION
March, 1957

PERSONNEL DEVELOPMENT

The 1957 "Productive Training" program was discussed with each level 3 Manager by the Specialist-Personnel Development. Reaction of the level 3 Managers was characterized by full cooperation and acceptance of the philosophy that FPD should be a self-training organization with instructors being selected according to interests and abilities from within the various operations.

The centralized Management Orientation program has been reduced to a one-day presentation covering the broad aspects of management, Company philosophy, relations with the AEC, etc. New exempt people subsequently will receive the management-skills portions of the training via personal discussions with function specialists within the Department.

Four three-hour PBM-I sessions were held in the Department during the month.

A presentation on "climate for personal growth" within the Company was made to a group of Maintenance and Power journeymen electricians at the request of their foreman.

As part of the Report Writing training program for Maintenance and Power supervision, an evening Report Writing seminar was presented. Basic principles of Report Writing were discussed, as well as requirements for periodic and other Maintenance and Power reports.

Upon completion of the current and one additional series of the "Understanding People" course, the plant psychologist will present a course on interviewing skills. Initially the course will be beamed at all level 4 Managers. Objective will be to improve manager-employee interviews with special emphasis on the exempt appraisal interviews.

"What a Supervisor Should Know About His People" form was developed for use in a refresher program for first-line supervisors on the Nonexempt Personnel Development program.

Development pages from the latest exempt appraisals were obtained from Salary and Wage Administration and preliminary review made. Data obtained will assist in planning personnel development activities.

The Data Processing course presented by R&U during the month was fully enrolled from FPD with five Department employees participating.

An opportunity to measure their reading speed was provided to all members of management during the month through distribution of the article, "The Venturesome Optimist," by Crawford Greenewalt. Ten respondents requested additional information concerning the Richland Public Schools' Speed Reading course. This distribution also represented a step in economics training within the Department.

Nonexempt Personnel Development forms distributed and returned during the first quarter of calendar year 1957, plus those still outstanding, are as follows:

	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>
Distributed	54	44	40
Returned	50	36	8
Outstanding	4	8	0 (due by April 15)

The College-Industry Conference on engineering education, which was attended by the Specialist-Personnel Development, was reported from the view point of the Department. Copies were distributed to all FPD Managers of engineers and to all Personnel Development Specialists and their Managers at HAPO.

All FPD tech. grad. assignment descriptions are being revised for inclusion in the forthcoming reissue of "Horizons at Hanford".

Twelve Technical Graduates were on rotational assignments at month's end, compared with 10 at the end of February. Number of available assignments was reduced to 17 during the month with deletion of the Personnel Practices assignment.

COMMUNICATION

Reasons for downgrading some security clearances from "Q" to "L" or "WA" and methods of communication were developed and communicated to operations concerned to help forestall adverse employee reaction.

Distribution of an FPD Employee News Letter on a bi-weekly basis was initiated during the month. This publication provides another channel of communication with employees, one recommended by the HAPO Five-Year Relations Program. Distribution may be increased to as much as one issue per day if required during any crisis period.

Material on the Savings Stock Bonus Plan for discussion in round table meetings during the second quarter of CY-1957 was prepared and approved by Employee Benefits.

A communication plan for explaining again the philosophy of Exempt Salary Plan was presented to and discussed with the Manager-Salary and Wage Administration.

GE News coverage of FPD employee activities totaled 172 inches during the month, an average of slightly better than $\frac{1}{2}$ page per issue.

Miscellaneous communication activities during the month included: two General Manager's information meetings, "House of Magic" ticket distribution, revised definitions of employee meetings, and four Management News Bulletins.

The General Manager's portion of the "Inside Hanford" program, presented "live" over KEPR-TV was drafted, and assistance was given during rehearsals.

A presentation on Conference Leading was made to the executive board of AAUW on Saturday, March 23 by the Manager-PD&C.

A total of three technical papers were cleared for presentation via Public Communication, and approval for one is pending.

SALARY AND WAGE ADMINISTRATION

A total of five positions were audited during the month. Excluding level two and three managers, fixed rate and vacant positions, 29 of the 106 positions have been audited. This is 109% of the two-year goal on a monthly basis.

A draft of the OPG for the position Manager, Manufacturing was completed. This is the third position to be completed.

The position Specialist, Manufacturing Engineering was established to meet a special temporary staffing need. Title of the position Special Canning and Slug Recovery was changed to Supervisor, Special Canning and Fuel Recovery.

Activity was continued concerning reorganization of the Inspection and Quality Control functions. The necessary position guide revisions have been outlined to responsible management.

Two days of reconciliation work with Mr. George F. Devereaux of AGT Flight Propulsion Laboratory resulted in the reconciliation of six FPD positions for the first time and confirmation of three previously reconciled positions. Internal reconciliation of two positions found commonly in other HAPO components was attempted. Further action is indicated for one Fuels Preparation Department position following external reconciliation.

Approval was obtained from the AEC for use of the job classification "Application, Planning and Methods Man." This title replaces the former title of Engineering Assistant which was used to describe the time and motion study work within the Manufacturing Engineering Operation.

Implementation of the New Engineering Assistant and Laboratory Assistant suffix titling is being completed following notice that the recommendations of the plant-wide study covering these categories had been adopted by all major plant components.

Audits during March have included the Drafting and Files, and Manufacturing Engineering Operations. Four new job descriptions were written in order to complete these audits. In order to provide for a more accurate and inclusive audit of the separate operations, the job audit schedule has been revised to reflect changes in the requirements of certain operations within the Department. The Manufacturing Operation (excepting Administration and Manufacturing Engineering) will be audited as a unit beginning about August 1, 1957.

Continued conference and study work concerning the new Secretarial Plan were aimed at revisions of the performance appraisal factor of the plan; the inclusion of scope measurement within the appraisal plan; and the formulation of the revised hiring and upgrading guides and procedures. Supervisors of all secretarial employees within the Department have been notified of the effect of the new plan.

The Standards Technician job classification has been reviewed with Manufacturing Operation at their request. It is contemplated that some changes in job assignment will be made in the near future, and new job descriptions are being prepared to reflect these proposed changes. Evaluation of the descriptions will be made as soon as they are rewritten.

Page nine of the Exempt Performance Appraisal concerning potential and plans for further development have been removed from the appraisals of all employees and submitted to the Personnel Development and Communication Operation for review in connection with its personnel development courses program.

A new report, the ratio of supervisors to supervised, was instituted on a monthly basis. This report will be submitted to the Specialist, Measurements as a "feeder" report.

Conversion of the salary records system to "Keysort" was found to be feasible and the Specialist, Audits and Procedures is preparing the necessary layout material.

The Specialist, Salary and Wage Records and Reports is making a thorough study of the techniques in graphical presentation. It is planned that in the future almost all of the routine statistical reports required of the Operation will be prepared in graph form. The first such report will record several aspects of the salary comparison of Department salaried employees and positions with other components at the beginning of this year, and will serve as a basis for determining future trends.

UNION RELATIONS

The plan to reduce the FPD's millwright force by two journeymen was discussed on March 29 with all other Union Relations people. During this discussion it was agreed that one millwright would be transferred immediately to IPD and that attempts would be made to raise the manpower ceiling in order that the second journeyman could be transferred to that department.

The proposal to eliminate the ratio agreement for the FPD has been thoroughly investigated. Following this investigation, a meeting was held by the Chemical Workers on Wednesday, March 6 at which time it was agreed that the ratio agreement will continue in effect for this department. During this meeting several of the other related problems were resolved.

A grievance procedure for use by independent nonexempt employees was developed and approved during the month. This procedure is presently being printed and will be distributed in accordance with the procedure for issuing such Advices.

The Maintenance & Power Operations' proposal to construct a new fire station and to establish a two-platoon system for industrial firemen in the 300 Area has been reviewed. In reviewing this project from the Union Relations' point of view, they were advised that these firemen are presently covered by the existing HAMTC-GE Agreement. Therefore, it was necessary to recommend that we forget about establishing a two-platoon system until our present contract is open for negotiations.

A seniority list, developed for the Field Assistants assigned the timekeeping responsibility for construction forces, was transmitted to the Council on March 22, 1957. The Council advised by letter under date of March 26 that the seniority list was not acceptable to the Council. They further advised that they are in the process of preparing a list of items to be discussed in the Field Assistants' negotiation meeting and that they would advise when such meetings should be scheduled. This could be quite an urgent matter, as the Company desires to reduce the size of the crew by five (5) people within the near future. If it becomes necessary to reduce this force before a seniority list is agreed upon, we in Union Relations suggest that the continuity of service date be used for selecting the employees to be laid off.

Union Relations (Continued)

Grievance Statistics:

A total of two grievances were received and two Step II grievance meetings were held. The following is a breakdown of the status of these grievances:

	<u>UNIT</u>	<u>NONUNIT</u>
Received this month	2	0
Received since 1/1/57 (See # Below)	16	0
Step I		
Answer unsatisfactory	1	0
Answer satisfactory	1	0
*Pending time limit	1	0
Settled this month	3	0
Step II		
Discussed this month	2	0
**Pending time limit	1	0
Settled this month	7	0

*Step I Grievances which Council indicated desire to discuss at Step II but not scheduled are considered settled at Step I at three 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.

Subject of March Grievances: (2 Total)

	Mfg. Oper.	Eng. Oper.	Maint & Pwr. Oper.	Empl. Rel.	Finan.
Jurisdictional	1		1		

Subjects of Grievances for 1957: (16 Total)

Overtime	3				
Jurisdictional	4		4		
Absence (Pers. Transp)			1		
(Illness)			1		
Ratios	1				
Hours of Work(48Hr Notice)	1				
Seniority	1				

HEALTH AND SAFETY

	March	February
Disabling Injuries	0	0
Serious Accidents	0	0
Medical Treatment Cases	35	40
Medical Treatment Frequency	2.86	3.38
Employee Hours of Exposure	122,566	118,399
Orientation		
Presentations	3	4
Attendance	6	21
Rotational Trainee Orientation		
One Hour Each	3	4
Safety Meetings Attended	5	6
Talks Given	5	6
Employee Attendance	170	53
Inspections	11	9
Suggestions Evaluated	5	6
Medical Examinations Scheduled	89	64
Supervisors Training	1	

Program Development

Safety publicity posters have been ordered for the 35 bulletin boards in Fuels Preparation Department buildings. Subject matter was selected to fit activity, and a supply for one year was ordered.

Industrial Medical examinations have been increased in number to include 15 interim and 10 periodic examinations per week. An effort will be made to maintain schedules over quota so that vacation months will not interfere with completion of annual totals.

The March Program Council campaign promoting spring clean-up has been brought to a successful close. Although there is room for improvement in some locations, the area in general has taken on an orderly appearance.

FPD office personnel attended the regular monthly safety-health-security meeting on March 20. There were 52 persons in attendance. Subjects covered included plant security, health, office and home safety.

Improvements are being made in the private vehicle parking lot as part of a program which will include hand rail replacement, painting of guy wire guards, a traffic flow study, and walk repair. Some of the work is in progress.

Industrial Hygiene studies have been made at the request of the Health and Safety office, in three locations presenting ventilation problems.

A joint inspection and evaluation of hazards in attic spaces of HLO buildings was made by the Specialists Health and Safety, HLO and FPD. Request has been initiated for an engineering study covering lighting, floor loads, walk-ways, and emergency exit procedures.

Safety shoe service for FPD employees has been improved by providing a deposit box for shoe orders near the display in 3707-D Building, and arranging for stores personnel to make pickup twice daily while on regular route.

Supervisors accident prevention training was started in March. One new supervisor was given an hour instruction period covering subjects necessary for adequate understanding of the program and services available from this office. It is planned that this training will continue on an individual basis, with discussion and instruction fitted to the needs of the supervisor concerned, dependent upon experience, length of service, and job activity.

The regular monthly inspection conducted by the Central Safety Council was completed on March 29.

A survey requested by Health and Safety will be made of drinking fountains in Department buildings to assure proper sewer hookup in accordance with National Plumbing Code.

Area Maintenance, the Department Landlord and Health and Safety have cooperated on a program to control water temperatures at taps in rest rooms of Department buildings.

Activities

March activity included contacts on the following items: Hoisting apparatus, flammable gases, accident prevention standards, safety meeting preparation, eye protection, chemical hazards, painting, walkways, respiratory air supply, traffic, cranes, publicity, materials handling, emergency lighting, toxic plastics, soluble oils, acids, caustics, emergency exits, atmospheric contaminants, power equipment, storage facilities, flammable liquids, toxic liquids, cutting equipment, welding, molten metal hazards, work activity in confined quarters, color codes, inspection procedures, orientation and training, overhead power lines, barricades, scaffolding, manifold systems, ladders, lift platforms, stairways, safety shoes, special medical exams, accident prevention signs, work on interior of operating equipment, and tank construction.

FIRE PREVENTION AND CIVIL DEFENSE

	<u>February</u>	<u>March</u>
Fires and Investigations	0	0
Building Inspections	32	45
Surveys	0	2
Hazard Reports Submitted	5	17
Orientation Program		
Number of Presentations	4	3
Number of Employees in Attendance	21	6
Rotational Trainee Orientations	0	1
Suggestions Evaluated	0	2

Program Development

Sponsored a meeting for FPD Engineering and Fire Protection personnel to hear an AEC Engineer discuss the fire hazard of metal roof construction and the imposed restrictions on its use in future construction at HAPO. A total of 18 people attended the meeting.

Assisted with the development of plans for a project proposal for a 300 Area Plant Defense warning system through meetings with AEC and FPD Engineering personnel. With HLO personnel, developed a new Master Evacuation procedure to be used by FPD and HLO as an area-wide procedure.

Organized a Supervisors Training Program in Fire Prevention and Civil Defense. The first training session was conducted during the month for one new supervisor.

Assisted Program Council with the month long "Operation New Broom" campaign. Area Housekeeping was greatly improved as a result of the campaign.

Projected fire prevention movie and gave fire prevention talk to 52 stenographic and clerical employees.

Conducted a training class on fire fighting methods in fuel element storage buildings for fire department officers.

General Activities

Surveyed all frame buildings for adequate fire extinguisher protection and requested procurement of 43 new extinguishers as replacements for a pre-war type that cannot be depended upon to operate properly and another type which presents a safety hazard to users.

Conducted a field and map study of the area water system sectional control valves and fire hydrants. Prepared the wording for new signs to be installed on 67 valves describing their function and recommended the replacement of 14 fire hydrants which operate against 100 pound pressure, instead of with the pressure.

Surveyed area fire alarm system to determine the cause of grounded conditions which seriously affected the operation of the system. Caused the correction of 12 potential trouble spots which helped to reduce the trouble. Further studies and tests are being made.

Attended a meeting conducted by FPD Engineering on Fuel Element Welding.

Provided advice and assistance on the following subjects: Oxygen manifolds and piping; acid line standards; incompatible gases; alcohol storage; welding permits; modifying building fire hose standpipes; air conditioning standards; fire protection for new office space; project proposal for increased water facilities; cost estimate for automatic fire extinguishing system and housekeeping problems.

TECHNICAL PERSONNEL PLACEMENT

College Recruiting

F. E. Jochen participated in callback meetings at Washington State College and the University of Idaho during March. Instead of a group-type meeting, a new procedure consisting of individual interviews with each candidate and his wife or fiancé on a regularly scheduled basis was used. A preliminary analysis of this type of callback meeting indicates that in some schools, this may produce better results than the group meetings. It appears to offer the opportunity for the individual and his wife or fiancé to ask and have answered more questions of personal interest to them, and satisfactorily clearing up some of these questions often may make the difference between acceptance and rejection of our offers. Callback meetings at Oregon State College, the University of Washington, Kansas State College, and the University of Kansas are scheduled for April. To date, as a result of F. E. Jochen's fall and spring recruiting trips to these schools, plus Gonzaga University and Seattle University, HAPO has extended 67 program offers to BS-MS candidates in engineering and science. In addition, 10 are being considered for direct placement. As of this date, 12 offers have been accepted.

College Recruiting (September 1956 to September 1957)

Rotational Assignments	Rotational Assignments for PDP	Permanent Assignments from PDP		
		Non-Exempt	Exempt	Total
<u>Engineering</u>				
Chemical	12	0	1	1
Electrical	3	0	0	0
Mechanical	4	0	0	0
Metallurgical	0	0	1	1
<u>Science</u>				
Chemistry	2	0	0	0
Physics	1	0	0	0
<u>Other</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>1</u>
TOTALS	25	0	3	3

Summer Program

As of this date, an adequate number of acceptances to offers extended have been received to supply the Fuels Preparation Department's requirements for college professors, high school teachers, graduate students, and college juniors for Summer Program assignments.

Experienced, BS-MS Recruiting

The quarterly report covering the Fuels Preparation Department's technical and exempt personnel requirements for the period April 1, 1957 to April 1, 1958 has been compiled and prepared from information submitted by individual departmental components. The over-all requirements in this review indicate an increase of 4 to be obtained by direct placement and one to be obtained from the Personnel Development Program.

Analysis of this report indicates the need for a total of 39 technical and exempt personnel (including attrition replacements) during this period. We plan to secure 17 of the total from the personnel development program graduates, leaving a total of 22 experienced people to be obtained by direct placement employment.

Two technical personnel were added to the exempt roll this month, making a total of 17 added from October 1 to March 29. This represents a 95 per cent achievement on the exempt roll in relation to the requirements as forecast for the year October 1, 1956 to October 1, 1957 (including attrition allowance) pro rated for the first six months covered by this forecast.

Two of the proof advertising copies received from Deutsch & Shea to cover two engineering openings in our Engineering Operation were selected, corrected, and returned with approval for publication and will appear according to the following schedule:

<u>Job Title</u>	<u>Publication</u>	<u>Issue</u>
Engineering Economist	Nucleonics	May
	Chemical & Engineering News	May 13
Metallurgical Process Engineer	Nucleonics	June
	Metal Progress	May
	Chemical & Engineering News	May

Two of our proof ads for an electrical engineer and electrical engineer or experimental physicist have appeared in the March issues of the publications Electrical Manufacturing and Non-Destructive Testing. However, no applications as a result of these ads have been received as of this date.

Negotiations are in progress to have Mr. T. G. Lambert, formerly a tech grad permanently assigned to the Process Section, Metal Preparation Sub-Section, who entered the Armed Forces in September 1953, to visit HAPO for interviews in line with reactivation upon his discharge on or about September 23, 1957.

This year we will be in a position to draw on three Company sources of engineering and scientific manpower: 1., Engineering Services - Advance Technical Programs; 2., Manufacturing Services - Manufacturing Training Programs; 3., Engineering Personnel Placement - Experienced Personnel, and we are now in the process of formulating brief descriptions of openings with other necessary details to supply these various services with sufficient information so they may submit applicable referrals to us.

A meeting of the Technical Personnel Placement representatives of the HAPO components was held on March 22, 1957 to promote free interchange of ideas and to coordinate thinking and to standardize practices in the field of Technical Personnel Placement. It is planned to conduct these meetings on a regularly scheduled basis.

The Fuels Preparation Department has found that the qualifications, background and interest of the MS in chemistry and the one maintenance foreman from the C.F.D. available list, whom we had under consideration last month, did not conform to our present F.P.D. openings. We are continuing to consider other cases from the Chemical Processing Department available personnel as they request it.

Included in our 7 offers accepted, not on the roll, are Guy Forbes of the Apparatus Sales Division in Tulsa, and Bill Riedeman of the off-site inspection group of the Construction Engineering Operation. It is expected that the former will report approximately May 1 and the latter April 8.

Experienced, BS-MS Recruiting (9-1-56 through 3-31-57)

	Cases		INVITATIONS							
	Considered		Extended		Visited		To Visit		Open	
	FPD	HAPO	FPD	HAPO	FPD	HAPO	FPD	HAPO	FPD	HAPO
<u>Engineering</u>										
Chemical	29	43	9	8	6	5	0	0	0	0
Electrical	23	49	12	17	7	7	0	0	0	2
Mechanical	31	60	19	23	13	16	3	0	1	2
Industrial	9	15	3	5	2	4	0	0	0	1
Metallurgical	10	22	6	9	4	3	0	2	0	1
Civil	6	17	0	0	1	0	0	0	0	0
Geological	0	3	0	0	0	0	0	0	0	0
<u>Science</u>										
Chemistry	11	52	0	6	0	2	0	0	0	0
Physics	10	39	3	9	1	4	1	1	0	0
Mathematics -										
Statistics	5	24	1	5	1	3	0	0	0	0
<u>Other**</u>	<u>54</u>	<u>188</u>	<u>13</u>	<u>14</u>	<u>14</u>	<u>10</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>2</u>
<u>Totals</u>	<u>188</u>	<u>512</u>	<u>66</u>	<u>96</u>	<u>49</u>	<u>54</u>	<u>4</u>	<u>4</u>	<u>1</u>	<u>8</u>

Experienced, BS-MS Recruiting, (Continued)

	OFFERS						ON THE ROLL	
	Extended		Accepted		Open		FPD	HAPO
	FPD	HAPO*	FPD	HAPO*	FPD	HAPO*		
<u>Engineering</u>								
Chemical	6	10	5	6	0	2	4	5
Electrical	4	7	2	4	2	2	1	4
Mechanical	8	12	4	4	0	3	2	2
Industrial	1	3	1	1	0	1	0	1
Metallurgical	2	3	2	3	0	0	1	2
Civil	0	1	0	1	0	0	0	1
Geological	0	0	0	0	0	0	0	0
<u>Science</u>								
Chemistry	0	4	0	2	0	1	0	2
Physics	0	3	0	1	0	0	0	1
Mathematics -								
Statistics	0	6	0	3	0	2	0	3
<u>Other**</u>	<u>10</u>	<u>16</u>	<u>10</u>	<u>14</u>	<u>0</u>	<u>2</u>	<u>9</u>	<u>13</u>
<u>Totals</u>	<u>31</u>	<u>65</u>	<u>24</u>	<u>39</u>	<u>2</u>	<u>13</u>	<u>17</u>	<u>34</u>

* HAPO offers totals include 6 carryovers from the 1955-56 season, of which 4 were acceptances not on the roll as of 9-1-56, and 2 were open offers at that time.

** Included in the above statistics under "Other" are 5 FPD qualified, experienced non-degree people up-graded from the non-exempt roll, and 2 qualified, experienced persons transferred from other HAPO components to the F.P.D. exempt roll.

PhD Recruiting

A total of 21 PhD candidates was referred to the Fuels Preparation Department for consideration this month. F.P.D. has interviewed two PhD candidates this month, and has expressed interview interest in one other PhD who will visit in April. Of the two candidates interviewed, F.P.D. is not interested in extending an offer to one, and the other has yet to visit other General Electric components and to express his preference. Twelve candidates are still to visit, who have been referred to F.P.D. components for expression of interest in interviewing.

PhD Recruiting (9-1-56 through 9-30-57)

	<u>F P D</u>		<u>H A P O</u>		<u>H A P O</u>
	<u>March</u>	<u>To Date</u>	<u>March</u>	<u>To Date</u>	<u>9-01-55</u> <u>through</u> <u>3-31-56</u>
Candidates	dna*	dna*	32	612	545
Invited	dna*	dna*	10	267	217
Visited	2	16	19	51	76
Offered	0	1	5	37**	21
Accepted Offers	0	0	1	8	4
On the Roll	0	0	1	4	8

* Applications and invitations are processed by the PhD Coordinator of the Relations and Utilities Operation on a HAPO-wide basis, not departmentally.

** This figure includes 12 carryover cases.

Terminations and Transfers

Termination and transfer activities for the month of March are as follows: Two exempt employees of the Fuels Preparation Department terminated employment, and one exempt employee was removed from the roll, deceased. No transfers were completed this month. There are 2 active transfer cases, 3 cases were closed, and 3 cases remain dormant as a result of a lack of openings at the components for which the employee applied, with the possibility of future consideration by that component.

Terminations and Transfers (Technical and/or Exempt Personnel), 9-1-56 through 3-29-57.

	<u>F P D</u>	
	<u>March</u>	<u>To Date</u>
TERMINATIONS	3	11
TRANSFERS TO OTHER COMPONENTS		
Requests Received	3	19
Completed Transfers	0	5*
Closed Cases	3	9
Active Cases	2	-
Dormant Cases	3	-

* Includes two transfers within HAPO

EMPLOYMENT

Unfilled Requests for Personnel 18

Personnel Requirements Cancelled 10

Employees Added to the Rolls 12 Exempt and Nonexempt

Employees Removed from the Rolls 11 Exempt and Nonexempt

Transfer Data (Concerns Requests for Transfer - FPD)

Total Requests for Transfer Active at Start of Month	54
Number of Requests Received	9
Number Interviewed	12
Requests for Transfer Effectuated in Month	1
Requests for Transfer Cancelled	8
Requests for Transfer Active at Month's End	54

Procurement

Offers	14
Interviews	15
Requisitions Received	12
Transfers (All)	5
New Applications Received	7

Upgrades within FPD 15

Personnel Records

Letters to Outside Agencies Regarding Information 4

Perfect Attendance Recognition Awards 9 (Male - 9)

Service Recognition Pins 10 year (2 Male - 1 Female) 5 year (1 Male - 1 Female)

General

Aptitude Tests 9

EMPLOYEE BENEFITS AND SERVICE

General

A report of employee participation in the Pension, Insurance and Stock Bonus Plans as of January 31, 1957 was sent to Level #3 and #4 Managers.

An inspection and a report was made of all women's rest room facilities within the area of Fuels Preparation Department landlord responsibility. The purpose of this inspection was to determine the adequacy, cleanliness, and attractiveness of these facilities.

Insurance Plan

One employee expired during the month:

CLARK V. QUIMBY 3-4-57 M-5541 Maintenance Engineering

Since September 1, 1956 life insurance claims have been paid totaling \$31,444.70.

Visits to Ill or Hospitalized Employees

Employees visited at Kadlec Methodist Hospital 5.

Purchase Plan

Effective March 15, 1957 the quantity restriction on the employee purchase of General Electric television receivers was revised. An employee may now purchase one console or table model T.V. set and two portable sets in a twelve month period for "within family" use. Within family use is interpreted to include the use of one portable set as a gift to a person to whom the employee is related.

Pension Plan

During the month one employee retired:

FRANK R. BEAR W-5039 Optional Retirement

This is the first Fuels Preparation Department retirement since September 1, 1956.

313 Building Tours

Employee Benefits and Service is now coordinating arrangements for tours of the 313 Building. During the month 26 employees from other HAPO departments toured these facilities.

Employee Benefit Plans

Participation in the Employee Benefit Plans as of the end of February and March is listed as follows by Department or Operation:

	<u>Pension Plan</u>		<u>Insurance Plan</u>		<u>Savings & Stock Bonus</u>	
	<u>Feb.</u>	<u>March</u>	<u>Feb.</u>	<u>March</u>	<u>Feb.</u>	<u>March</u>
Fuels Preparation	99.9	99.9	99.7	99.7	51.5	51.3
Chemical Process	98.8	98.6	99.7	99.7	56.5	56.9
Irradiation						
Processing	99.3		99.7		56.0	
Hanford						
Laboratories	97.6		99.4		58.7	
Relations and						
Utilities	99.6		99.6		50.7	
Construction						
Engineering	99.7		99.7		61.3	

Suggestion Statistics

	<u>Fuels Preparation Department</u>		<u>From Other Departments</u>		<u>Total</u>	
	<u>Feb.</u>	<u>March</u>	<u>Feb.</u>	<u>March</u>	<u>Feb.</u>	<u>March</u>
	59	62	22	17	81	79
Received						
Completed (all suggestions re- jected or all approvals re- ceived)	45	42	20	19	65	61
Adopted	20	20	2	1	22	21
Percent Adopted	44.4	47.6	10	5.2	33.8	34.4
Net Savings	\$5,869.17	\$2,693.04	\$65.00	0	\$5,934.17	\$2,693.04
Cash Awards	\$420.00	\$545.00	0	0	\$420.00	\$545.00
<u>Awards</u>						
Net Savings	7.1%	20.2%	0	0	7.1%	20.2%
No. referred to other Depts.	3	12			3	12

Cumulative Statistics (Since 1-1-57)

Prior Backlog	130	145	10	12	140	157
Present Backlog	145	165	12	10	157	175
Received	100	162	36	53	136	215
Adopted	36	56	4	5	40	61
Net Savings	\$8,400.80	\$14,269.97	\$65.00	\$65.00	\$8,465.80	\$14,334.97
Awards	\$795.00	\$1,340.00				
<u>Awards</u>						
Net Savings	9.4%	9.4%				
No. outstanding to other Depts.	8	19				

Selective Service

As a result of the recent survey on military status there are still 6 employees in the vulnerable military service age class yet unheard from.

Selective Service and Reserve Statistics

Total number of non-veteran employees subject to military service training through Selective Service System Total 25

Number classified IA	13	Number classified 4F	5
" " 3A	4	Total	<u>25</u>
" " 2A	3		

Number of Technically Trained and Engineering Personnel for whom deferments are currently being requested 3.

Reservists Data - Total Number of Reservists on Roll 46.

Number of Ready Reservists 32.

Number of Standby Reservists 14.

Last months report should not have indicated an inactive reservists category. There are only two classes of reservists as shown above.

Ready Reservists subject to drills, cruises, summer camp and/or weekly meetings 19.

Number of employees on military leave 2.

PERSONNEL RESEARCH

On March 1, the position Analyst, Personnel Results was filled by D.M. Polinsky, formerly assigned to HLO. Mr. Polinsky is a Psychologist with a strong mathematics and statistics background.

The last week of the month Mr. Polinsky conferred with individuals in Cincinnati and New York. Areas covered in these conferences included the ERI, personnel records systems, manpower inventories, exit interviews, attitude surveys, and foreman rating. Valuable information was obtained by meeting with people who had experience in one or more of these areas and contacts were established which will be of value in future work.

SECURITY VIOLATIONS

There were no security violations during the month of March.

GENERAL

The Manager, Personnel Practices, attended a two week "Personnel Practices Training Course" conducted in New York between March 17 - March 29. This was the first such course conducted in the Company and considerable valuable information in the area of personnel practices was imparted.

Manager - Employee Relations

END

DATE
FILMED

2 / 22 / 93