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HANFORD WORKS MONTHLY REPORT

FOR

OCTOBER 1952

Compiled By
Department Managers

November 20, 1952

INV SEP 14 '93
HANFORD
47713

INV SEP 14 '93
Classification reviewed for declassification and changed
by .....
Date .....

HANFORD WORKS
RICHLAND, WASHINGTON

Operated for the Atomic Energy Commission
by the
General Electric Company
under
Contract # W-31-109-eng-52

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TABLE OF CONTENTS

General Summary A-1
Staff B-1
Number of Employees C-1
Personnel Distribution . . . . . D-1 and D-2

Manufacturing Department . . . . . E-1 through E-3
Plant Statistics . . . . . Ea-1 through Ea-4
Metal Preparation Section . . . . . Eb-1 through Eb-7
Reactor Section . . . . . Ec-1 through Ec-8
Separations Section . . . . . Ed-1 through Ed-13

Engineering Department . . . . . F-1 through F-5
Engineering Department Administration . . . . . Fa-1 and Fa-2
Technical Section - General Faa-1
Pile Technology Unit . . . . . Fb-1 through Fb-33
Separations Technology Unit . . . . . Fc-1 through Fc-23
Applied Research Unit . . . . . Fd-1 through Fd-15
Technical Services Unit . . . . . Fe-1 through Fe-13
Design Section . . . . . Ff-1 through Ff-11
Project Section . . . . . Fg-2 through Fg-22

Medical Department . . . . . G-1 through G-14

Radiological Sciences Department . . . . . H-1 through H-17

Financial Department . . . . . I-1 through I-3
General Accounting Section . . . . . Ia-1 through Ia-10
Payroll Section . . . . . Ib-1 through Ib-9
General Cost Section Ic-1
Manufacturing Cost Section . . . . . Id-1 through Id-3
Engineering Cost Section . . . . . Ie-1 and Ie-2
Internal Audit Section If-1

Utilities and General Services Department
Plant Security and Services Section . . . . . Ja-1 through Ja-41
Purchasing and Stores Section . . . . . Jb-1 through Jb-11
Transportation Section . . . . . Jc-1 through Jc-6
Electrical Distribution and Telephone Section . . . . . Jd-1 through Jd-5
Statistical and Computing Services Section . . . . . Je-2 through Je-15

Employee and Public Relations Department . . . . . K-1 through K-32

Community Real Estate and Services Department . . . . . L-1 and L-2
Contract Section La-1
Community Services Section Lb-1
Public Works Unit . . . . . Lc-1 through Lc-3
Recreation and Civic Affairs Unit . . . . . Ld-1 through Ld-3
Richland Public Library . . . . . Le-1 and Le-2
Richland Police . . . . . Lf-1 through Lf-11
Richland Fire . . . . . Lg-1 through Lg-3
Engineering Unit . . . . . Lh-1 through Lh-3
Real Estate Section Li-1
Housing and Real Estate Maintenance Unit . . . . . Lj-1 through Lj-10
Real Estate Engineering Unit . . . . . Lk-1 and Lk-2
Commercial Property Unit . . . . . Ll-1 through Ll-4
700, 1100, 3000 Area Services Section . . . . . Lm-1 through Lm-3

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HANFORD WORKS MONTHLY REPORT
GENERAL SUMMARY

OCTOBER 1952

Production Operations

New high production records were established in the Metal Preparation Section and in the Reactor Section. Production in the Bismuth Phosphate Plant and in the Redox Plant was 99% and 96% of forecast, respectively. The production of UO_3 was 135% of forecast.

Improvement was experienced in process difficulties associated with the treatment of "cold" uranium in the TBP plant.

Eleven ruptured slug jackets and one leaking tube in the reactors were taken care of without excessive outages.

Engineering and Technology

The design of 100-K Reactor Facilities reached 42.6% of completion, and that of 100-K Water Plant Facilities 38%. Design scope of a new separations plant, and of expanded 300 Area facilities reached about 18% of completion.

A survey has been made of the various designs of plutonium producing reactors proposed at other AEC sites, and tentative conclusions are drawn.

The first successful etching and close metallographic examination of irradiated uranium has been achieved.

The transfer of analytical control laboratory services from Engineering to Manufacturing that was begun nearly a year ago has been completed.

An eastward movement of ground water under the 200 Areas was observed, presumably due to the loading of the ground water mound by the Redox Process.

Personnel and Services

A study directed toward a better understanding of absenteeism, and means for its reduction, which was begun by the Medical Department, was expanded to include the entire division.

There were 716 housing applications pending.

Work continued on the midyear review of the 1953 budget. Average manpower estimates were revised downward from last May by about 500 persons. There were currently 8,804 employees on the roll. Turnover decreased from 2.60% to 1.38%.

A new high peak of electric power consumption was reached during the month.

An employee attitude survey was conducted during the month.

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MANUFACTURING DEPARTMENT

OCTOBER, 1952

November 11 1952

METAL PREPARATION SECTION

The production for the month was 44 tons of 4-inch material and 133 tons of 8-inch material, for a total of 177 tons. This represents 103.5 percent of forecast, and establishes a new production record.

The machining yield was 79.3 percent and 81.7 percent for 4-inch and 8-inch material, respectively. The canning yield was 84.4 percent for 4-inch material and 80.5 percent for 8-inch material. The melt plant produced 66 tons of billets with a yield of 84.3 percent and a solid yield of 94.5 percent.

There were two autoclave failures of 4-inch pieces for a frequency of 0.09 per thousand. There were two 8-inch piece failures for a frequency of 0.06 per thousand. The failures were attributed to defective cans in the 4-inch pieces and operating technique in the 8-inch pieces.

REACTOR SECTION

The total reactor input production was 114.3 percent of forecast and exceeds the record of achievement established in September, 1952. A new record of input production for one day was established on October 28 which was 21 MWD higher than the previously established record. An increase of 40 MW was realized in established maximum operating levels. This increase is attributed to lower inlet water temperature, increased reactivity and improved flattening. The reactor output production was 127.9 percent of forecast. This high output production was caused by the rescheduling of discharge at the D Area from the month of November to avoid an outage during the Ball 3X shutdown and installation at F Reactor.

There were 11 uranium slug jacket failures during October of which four were Group 7, seven were Group 8, with no Group 9 failures. Seven of these were discharged within the scram recovery time, avoiding approximately 150 hours of outage time.

The operating efficiency of the reactors was 91.0 percent. This was primarily due to the reduction of unscheduled outage time for ruptured pieces and leaking tubes.

One leaking tube at the F Reactor, 0585-F, was removed during the outage for a stuck ruptured piece. A negligible quantity of water entered the moderator as a result of this leak.

SEPARATIONS SECTION

A total of 22 runs and one acid wash was started in the Canyon Buildings representing 99.0 percent of forecast. In Redox 112 runs were started representing 96.0 percent

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STAFF

Vice President in Charge	G. R. Prout
General Manager	W. E. Johnson
Manager, Schenectady Office	B. R. Prentice
Assistant to the General Manager, General Administration	G. G. Lail
Assistant to the General Manager, Technical	W. I. Patnode
Assistant to the General Manager, Evaluation of Division Activities	W. K. MacCready
Counsel	G. C. Butler
Manager, Finance	W. W. Smith
Manager, Employee and Public Relations	H. E. Callahan
Director, Radiological Sciences	H. M. Parker
Director, Medical	W. D. Norwood, MD
Manager, Engineering	A. B. Greninger
Manager, Manufacturing	C. N. Gross
Manager, Utilities and General Services	H. D. Middel
Manager, Community Real Estate and Services	L. F. Huck

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NUCLEONICS DIVISION
NUMBER OF EMPLOYEES
OCTOBER 31, 1952

	EXEMPT		OTHER		TOTAL	
	9-30-52	10-31-52	9-30-52	10-31-52	9-30-52	10-31-52
ENGINEERING DEPT.						
General	5	5	6	6	11	11
Design	142	143	49	52	191	195
Project	203	204	262	264	465	468
Technical Section						
Administrative	9	9	3	4	12	13
Applied Research	175	113	69	70	244	183
Pile Technology	150	151	91	102	241	253
Separations Technology	133	134	34	35	167	169
Technical Services	34	35	134	111	168	146
MANUFACTURING DEPT.						
General	22	21	9	10	31	31
Reactor	219	226	979	995	1 198	1 221
Separations	278	344	1 218	1 229	1 496	1 573
Metal Preparations	72	75	413	413	485	488
UTILITIES & GENERAL SERVICES						
General	-	1	1	1	1	2
Electrical Dist. & Telephone	36	36	149	147	185	183
Transportation	48	48	489	485	537	533
Purchasing & Stores	58	58	280	282	338	340
Statistical & Computing	27	27	46	50	73	77
Plant Security & Services						
Patrol & Security	61	62	554	554	615	616
Safety & Fire	43	43	104	110	147	153
Office Services	32	34	307	304	339	338
COMMUNITY REAL ESTATE & SERVICES	123	116	390	372	513	488
FINANCIAL DEPT.						
General	5	5	16	15	21	20
General Accounting	12	13	102	100	114	113
Payroll	12	12	69	69	81	81
General Cost	11	11	33	37	44	48
Manufacturing Cost	9	9	31	31	40	40
Engineering Cost	10	8	33	32	43	40
Internal Audit	12	12	1	2	13	14
EMPLOYEE & PUBLIC RELATIONS	40	39	65	68	105	107
RADIOLOGICAL SCIENCES						
General	2	2	3	2	5	4
Records & Standards	23	22	145	143	168	165
Biophysics	54	54	51	53	105	107
Biology	41	41	45	44	86	85
MEDICAL DEPARTMENT	45	45	228	218	273	263
LAW	3	3	3	3	6	6
GENERAL	23	24	205	174	228	198
TOTAL	2 172	2 185	6 617	6 587	8 789	8 772

Financial Dept.
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PERSONNEL DISTRIBUTION - OCTOBER, 1952

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	700-1100-3000 Area and Plant General	Total
Engineering Department										
Exempt	66	63	2	11	23	25	90	220	294	794
Other	29	47	5	47	15	3	23	176	299	644
Total	95	110	7	58	38	28	113	396	593	1 438
Manufacturing Department										
Exempt	64	64	43	54	1	13	325	72	30	666
Other	222	282	363	162	12	112	1 110	369	15	2 647
Total	286	346	406	216	13	125	1 435	441	45	3 313
Utilities and General Services										
Exempt	29	9	8	9	7	21	16	14	196	309
Other	98	63	125	61	9	91	229	124	1 133	1 933
Total	127	72	133	70	16	112	245	138	1 329	2 242
Community Real Estate and Services										
Exempt									116	116
Other			2						370	372
Total			2						486	488
Financial Department										
Exempt				1			1		68	70
Other	2			1		2	1		280	286
Total	2			2		2	2		348	356

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	700-1100-3000 Area and Plant General	Total
Employee & Public Relations										
Exempt			1						38	39
Other	—	—	—	—	—	—	—	—	68	68
Total	—	—	1	—	—	—	—	—	106	107
Radiological Sciences Department										
Exempt	1			41		8	29	29	11	119
Other	7	—	46	—	—	29	40	105	15	242
Total	8	—	46	41	—	37	69	134	26	361
Medical Department										
Exempt									45	45
Other	1	5	4	2	—	1	4	2	199	218
Total	1	5	4	2	—	1	4	2	244	263
General										
Exempt									27	27
Other	9	20	6	7	—	2	13	18	102	177
Total	9	20	6	7	—	2	13	18	129	204
Total Exempt	160	136	54	116	31	67	461	335	825	2 185
Total Other	368	417	551	280	36	240	1 420	794	2 481	6 587
Grand Total	528	553	605	396	67	307	1 881	1 129	3 306	8 772

Financial Department

[redacted]

PARATIONS SECTION (Continued)

of forecast. This decreased production resulted when flooding of the 1A column occurred necessitating a cutback in feed rate to 3 tons per day by month end, plus the loss of about 8 days early in the month. The outage was occasioned by the replacement of the 3D column as a part of the Phase I, Redox capacity increase, and replacing a leaking waste evaporator coil.

Cold uranium runs from Redox UNH were completed in the TBP process with waste losses from the revised RA columns in both the A and B lines reported consistently below one percent. At month end, the final equipment inspection and adjustment was in progress in preparation for "hot" operation.

A total of 98.4 tons of uranium in UO_3 was produced and was 135 percent of forecast. Some difficulty was still experienced with foaming and caking in the pots of the "cold" UNH from the TBP plant, but steam stripping of this material has reduced these problems considerably.

Homogenization began this month in the C tank farm. There was one pump failure at the 101-U tank in the U tank farm.

GENERAL

The coal inventory increased from 4.7 months supply on hand October 1, 1952 to 5.1 months supply on hand October 31, 1952. The 5.1 months coal inventory is based on recast consumption for the period November, 1952 through April, 1953. This increase is the result of request for heavy shipments early in the month which off-set the effect of coal strike which stopped shipments for a ten day period.

Personnel

Total on Roll October 1, 1952	3239
Accessions	112*
Separations	35
Total on Roll October 31, 1952	3316

*Includes 66 transfers from Technical, completing the transfers of the Analytical Laboratories to the Manufacturing Department.

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C. N. GROSS, MANAGER
MANUFACTURING DEPARTMENT

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MANUFACTURING DEPARTMENT

PATENT REPORT SUMMARY
FOR
MONTH OF OCTOBER, 1952

Richland, Washington
November 11, 1952

All persons 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 the period covered by this report 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.

INVENTOR	TITLE
C. E. Hirsch, Separations Section	Process Sampler
A. C. Morganthaler, Separations Section L. M. Vik, Separations Section C. F. Setbacken, Separations Section	Application of an Immersible Photo Electric Interface Locater and Turbidimeter for Use in Remote and Inaccessible Places.

C. N. GROSS, MANAGER
MANUFACTUFING DEPARTMENT

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Section 10 verified by V. D. Donihee
V. D. Donihee

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November 10, 1952

MANUFACTURING DEPARTMENT
METAL PREPARATION SECTION
OCTOBER, 1952

I. RESPONSIBILITY

Responsibilities of the Metal Preparation Section were unchanged.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

	October	September	Year To Date
Bare Pieces Machined (4")(Tons)	53	38	580
Machining Yield (4")(%)	79.3	81.7	79.3
Bare Pieces Machined (8")(Tons)	138	142	994
Machining Yield (8")(%)	81.7	81.0	80.6
Total Machined-Tons	191	180	1574
Acceptable Pieces Canned (4")(Tons)	44	46	600
Canning Yield (4")(%)	84.4	80.6	78.2
Acceptable Pieces Canned (8")(Tons)	133	118	846
Canning Yield (8")(%)	80.5	72.4	69.3
Total Acceptable Canned-Tons	177	164	1446
Acceptable Pieces Canned (4" & 8") (% of forecast)	103.5	114.3	104.2
Autoclave Frequency (4")(No./M)	.09	.00	.07
Autoclave Frequency (8")(No./M)	.06	.00	.06

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1. Statistics (Continued)

	October	September	Year To Date
Briquettes Produced (Tons)	42	20	254
Chip Recovery Yield (%)	88.7	85.7	86.9
Billets Produced (Tons)	66	58	576
Melt Plant Billet Yield (%)	84.3	83.1	84.4
Melt Plant Solid Yield (%)	94.5	94.4	93.9
Oxide Burned (Weight out Tons)	9	7	75
Poison Canned (Number Pieces)	3447	5469	26024
Chemical 68-56 Canned (No. Pieces)	0	0	296
Chemical 10-66 Canned (No. Pieces)	295	740	3221
Special Request (Man Hours)	652	430	4823
305 Routine Tests (Man Hours)	160	136	1198
305 Special Tests (Man Hours)	576	356	3327
Maximum Steam Generated (M lbs/hr.)	30	14.5	
Total Steam Generated (M lbs.)	12,300	8,000	
Average Rate Steam Generated (M lbs/hr.)	17.6	11	
Coal Consumed (Tons)	838	535	
Sanitary Water from 3000 Area (Million gals.)	45	37	
Total Water Average Rate (gpm)	1,014	859	
Chlorine Residual (ppm)	.43	.39	

2. Activities

The production of machined slugs during the month exceeded that of any previous month. The general quality of the rods as received continued to be satisfactory. The material machined was about evenly divided between Hanford cast billets and virgin Mallinckrodt material. Approximately 60% of the material had been rolled in August, 25% in September and the balance rolled in March, May and June.

A total of 177 tons of acceptable slugs were canned this month, establishing a new record at Hanford Works. The yield of four inch and eight inch material increased by 4.3% and 7.3% respectively. The improvement was the result of a general decrease in most types of rejects.

Analysis of the four autoclave failures which occurred during the month revealed that two were believed to be the result of defective cans and two were attributable to operating techniques.

Statistical analysis of slugs machined from the May rolling, taken before and after salt bath heat treatment, has been completed. Results indicated that the slugs tend to decrease in length while increasing in diameter preferentially at the ends. Data have been gathered on salt bath heat treated material from the June and August rollings and are presently being statistically analyzed.

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3. Special Operations

One lot of simulated Hanford type slugs, produced at Fernald by centerless grinding, was processed through machining inspection, pickle inspection and canning. A yield of 86.0% was obtained in canning, with no non-seat difficulties being encountered. Reactivity tests of bare and canned samples from this lot indicated quality to be about the same as Hanford material.

Approximately 3000 four inch pieces produced from rods which were beta heat treated at Fernald were canned by the lead dip method. Mechanical difficulties caused fluctuations of furnace temperatures which resulted in AlSi penetration and a rejection of approximately 750 pieces.

The program for dry canning enriched fuel slugs for "C" pile was completed with 575 pieces being accepted.

There were 1,427 smooth surface four inch slugs satisfactorily canned under Production Test 313-105-11-M, "The Evaluation of Surface Finish of Slugs Machined at Fernald from Standard Rods Rolled at Simonds."

A total of 435 eight inch slugs, lead dip canned under Production Test 313-105-3-M in which transformation was questionable were inspected by means of an ultra-sonic testing device. Of this lot an acceptance yield of 66.2% was obtained. Samples of those accepted and rejected by the device were subjected to destructive tests, which indicated very good reliability of the inspection. Acceptable pieces are to be pile loaded on a Production Test basis. At month end, 1075 four inch pieces had been inspected by this method with an acceptance yield of 87.4%.

4. Schedule Variance

Machining production was 0.4% above forecast.

Canning production was 103.5% of forecast and reflects the improved yield of both four and eight inch material.

Billet production exceeded forecast by 1.7% due to a reduction of casting difficulties.

B. Equipment Experience

1. Operating Continuity

Damage by construction forces to the 12-inch water supply line from North Richland necessitated taking suction from the ground tank and obtaining a pressure boost from North Richland to enable operation through the two 6-inch lines.

2. Inspections, Maintenance and Replacement

Quality improvement by the welding machine rehabilitation including certain mechanical changes, is expected to show a 1.3% yield improvement.

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C. Improvement Experience

1. Production Tests

PT-313-105-2M "Triple Dip Canning and Irradiation of Eight-Inch Uranium Slugs Fabricated in Heavy Walled Aluminum Cans" (HW-22463). Approximately 35,000 slugs were fabricated and sent to storage under this test during the month. The yield was 80% acceptable, the best yet attained on this test. Non-seats, formerly the highest reject category, were down to 2.5%; poor bonds were up slightly to 4.9% and marred surfaces rejected 2.2% of the pieces canned.

PT-313-105-7M "Irradiation of Alpha Canned Uranium Slugs from Rods Salt Bath Beta Heat Treated at Fernald" (HW-24829). Approximately 3000 slugs were lead dip canned in accordance with conditions of this test. Other than penetration difficulties caused by erratic temperature control, there were no unusual operational experiences.

2. Process Tests and Revisions

MMP-313-1 "Fluxing of AlSi Canning Bath" (HW-25622). This test was initiated with the fluxing of a fresh AlSi bath and during the first shift of operation, canning operations were not adversely affected. Upon subsequent repetition of the procedure, difficulties were encountered with a build-up of tin concentration in the AlSi bath. In view of this development the test was discontinued pending investigation of the condition. Tentative results of this limited test were encouraging.

3. Inventions and Discoveries

Personnel in the Metal Preparation Section engaged in work which might 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 the period covered by this report.

D. Events Influencing Cost

1. Labor Variance

184 man-hours were required to decontaminate seven rod and scrap cars received during the month.

2. Material Variance

Poor surface quality of Alcoa caps continued. To date 34,000 have been returned to the vendor for credit with 16,000 on hand to be returned.

The consumption of AlSi continued to be high due to the unexplained above average rate of tin build-up in the canning baths.

[redacted]

E. Plant Engineering and Expansion

1. Project Status

Project C-199 - 300 Area Sewage Disposal System. No further work progress was made on this project during this period. Construction is 96% complete.

Project C-394 - Outside Facilities and Utilities for Laboratory Area. The steam lines are complete and steam service was made available to the Bio-Physics Building, Library and Files Building and the Badge House.

The eight-inch fire and sanitary water loop was sterilized and placed in service, making water available to the above buildings. Construction is approximately 85% complete.

Project C-433 - Power House Addition. The boilers have been boiled out and are scheduled to be placed on the line by November 1, 1952. Acceptance tests are scheduled for the first week in November. Piping is now essentially complete. Progress on electrical installations has been delayed while awaiting delivery of necessary cable and equipment. A revised project proposal has been prepared and submitted by the Engineering Department requesting an extension of the completion date from October 23, 1952 to January 30, 1953. Construction is 93% complete.

Project C-481 - Equipment for 8" Slug Manufacture. A revised project proposal requesting an extension of the completion date and reallocation of project funds for 100 Area unloading facilities was approved by the A & B Committee and is now awaiting A.E.C. approval.

Project C-451 - Extension of Underground Electric Power Distribution System, 300 Area. Excavation for underground lines was completed. About 50% of the concrete duct work and two of three junction boxes have been poured. Construction on the project is 50% complete.

2. Plant Engineering

Material cost standards were issued for steel sleeves. This completes the essential material standards for slug preparation. Direct labor cost standards were revised for the machining, canning and welding operations, and material cost standards were revised for tin, aluminum, silicon and copper.

An economic analysis was made to determine the cost involved in reprocessing canned slug rejects returned from the 100 Areas. An investigation of improved methods of handling crucibles in the Melt Plant was completed and recommendations submitted to the Operations Unit.

The fabrication of pneumatic canning jacks and accessories to equip a second canning line is nearing completion and shop tests are in progress

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2. Plant Engineering (Continued)

on completed items. Installation on the canning line is planned for early November. Preliminary design of an automatically timed bronze bath agitator was completed, reviewed and is now being modified to improve operation.

F. Significant Reports Issued

1. Routine

Number	Title	Author	Date
HW-25789	Monthly Report, Process Unit Metal Preparation Section	E. W. O'Rorke	10-1-52
HW-26021	Metal Preparation Process Committee, Minutes of Meeting	E. W. O'Rorke	10-23-52

2. Non-Routine

HW-25356	Feasibility of Slug Cut-Off by Sawing	A. D. Holben	8-11-52
HW-25901	Shortage in Production Lot 306, Operations Unit, Metal Preparation Section	H. E. Berg	10-9-52
HW-25979	Suspected Discrepancy of SF Material	J. A. Cowan	10-20-52

III. PERSONNEL

A. Organization

No change.

B. Force Summary

	Start of Month	End of Month	Net Change
Section General	4	4	0
Operations Unit	208	205	- 3
Power & Maintenance Unit	234	237	3
Process Unit	20	19	- 1
Plant Engineering Services Unit	20	20	0
Radiation Monitoring Unit	3	3	0
Section Total	489	488	- 1

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C. Safety Experience

There were no major or sub-major injuries in the Section during the month.

D. Radiation Experience

The badge film of a metal worker assigned to material handling indicated an exposure of 965 mrep due to beta radiation and 55 mr due to gamma radiation for a total exposure of 1020 mrep for the one week period. This occurrence was investigated as Class II Radiation Hazards Incident Number 11. The committee could not establish that an exposure of this magnitude was likely, considering the job assignment. The employee stated that the badge had been lost but additional circumstances could not be established.

A metal worker assigned to Melt Plant duties received an exposure of 305 mrep for one week. This exposure can be attributed to the inexperience of the operator and an unauthorized entry into the oxide furnace.

E. Personnel Activities

The continuation of training meetings brought a talk by E. C. Wood of the Pile Fuels Unit on the subject of "Non-Destructive Testing" to interested personnel of the Metal Preparation Section.

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November 10, 1952

MANUFACTURING DEPARTMENT
REACTOR SECTION
OCTOBER, 1952

I. RESPONSIBILITY

Responsibilities assigned to the Reactor Section were not changed during October.

II. ACHIEVEMENT

A. Operating Experience

The total reactor input production was 114.3% of forecast and 5.3% greater than for September. This production was a new record, having exceeded by 3907 units the previous record established last month. The per diem production rate for October exceeded the previous high of September by 47 units. Established maximum operating levels were increased 40 MW. This increase is attributable to lower inlet water temperature, increased reactivity, and improved flattening. Reactor output production for the month exceeded forecast by 27.9% as a result of high input production during recent months and an additional discharge in D Area which was rescheduled in order to avoid an outage during the Ball 3X shutdown at F Reactor.

There were 11 uranium slug jacket failures during October, seven of which were discharged within the scram recovery time limitation; all were four-inch slug failures. One process tube water leak was encountered during the month. The offending tube was 0585-F.

Details of operation of the reactors and water facilities are set forth below:

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A. Operating Experience (Continued)

1. Statistics

	B	D	DR	F	H	Total or Average
Reactor Time Operated Efficiency (%)	88.8	89.0	94.2	88.2	94.9	91.0
Reactor Outage Time (Hrs.)						
Plutonium Production	79.7	59.5	37.2	87.6	33.3	297.3
Special Irradiation and Production Tests	3.4	22.6	6.0	0.5	4.7	37.2
Total	83.1	82.1	43.2	88.1	38.0	334.5
Reactor Unscheduled Outage Time (Hrs.)	60.4	1.4	-	87.6	0.9	150.3
Metal Discharged (Tons)	27.10	37.51	36.04	2.76	27.31	130.72
Water Quality (ppm Iron)						
Raw Water - Average	0.07	0.07	0.07	0.07	0.08	-
Raw Water - Maximum	0.09	0.09	0.09	0.08	0.09	-
Process Water - Average	0.018	0.005	0.019	0.005	0.019	-
Process Water - Maximum	0.045	0.013	0.035	0.013	0.031	-
Water Pumped (MM gals.)						
Bldg. 190 to Reactor	1595	1622	1813	1564	1940	8534
Bldg. 181	2051	4557		1858	2301	10767
Steam Generated (MM lbs.)	127.3	211.1		115.7	93.8	547.9
Coal Consumed (Tons)	8311	14619		7348	6157	36435

2. Activities

Eleven slug failures required 118.9 hours of reactor outage during October. The major portion of this time was required for removal of four ruptured slugs which could not be discharged within the scram recovery time. Evidence of cavitation was observed on two of the stuck slugs from F Reactor as well as on several other slugs from the same tubes.

One process tube water leak occurred during the month. This tube, 0585-F, was found to be leaking after hydrostatic testing of 812 tubes during an outage on October 6 for removal of a stuck, ruptured slug. Twenty-four hours' outage time was required for this testing program, which was necessary due to water leak indications observed prior to the shutdown. A negligible amount of water apparently entered the moderator as a result of this leak.

Two additional tubes were blanked off in the lower far corner of F Reactor during the month and four more dummy tubes were made in the central orifice zone. Blanked and dummy tubes now account for approximately 36%, or 188 inhours, of the total reactivity available for flattening at F Reactor.

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2. Activities (Continued)

Coal deliveries to the 100 Areas were interrupted during the period of October 23 to 29, due to the soft coal miners' strike and the federal embargo on further shipments from operating mines. Coal deliveries are expected to be back on normal schedule the first week of November. Present plant inventory is about 5 months supply.

The 100-C Area water plant was staffed throughout the month with an essentially standard Power crew. Although these facilities have not been officially accepted, the Power sub-unit has assisted Construction forces in the operation of completed equipment. At month end, water quality was being maintained within expected 100-C Area specifications using the alum process.

The following breakdown indicates activities during October associated with special irradiations:

	Tubes Charged	Tubes Discharged	Casks Shipped
Chemical 10-66	--	--	--
Chemical 72-60	1	7	--
Rala	--	--	--
Production Tests	31	12	17
Total	32	19	17

B. Equipment Experience

Equipment failures caused three unscheduled shutdowns during October, totaling 1.7 hours' outage time. These failures were a faulty thermocouple which was limiting F Reactor power level, a split process tube front pigtail nut which resulted in a severe water leak at F Reactor, and a faulty panellit gauge which scrammed D Reactor.

During the month, 48 process tube thermocouples failed; 4 at B, 6 at D, 19 at F and 19 at H Reactors. Approximately 33 hours of outage time were required to repair or replace these thermocouples.

The horizontal rods at B, D and F Reactors continued to require extensive repairs in order to keep them in operating condition. At D Reactor, No. 7 rod was returned to service after correction of binding; rods No. 4, 6 and 9 showed signs of binding at month end, although they are still usable. At B Reactor, No. 9 rod is out of service pending replacement of the leaking thimble. No. 6 rod at F Reactor is out of service due to excessive binding.

Since alum coagulant feed concentration in Building 183-D was low enough to allow pH control of the filtered water without lime feed, an opportunity was afforded to inspect and clean out the lime lines in this building. Deposits in the lines since July 15, 1952, had reduced the internal diameter by 60 percent.

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B. Equipment Experience (Continued)

Failure of tubes in the vent condenser of the deaerated feedwater heater in Building 184-D required removal of the heater from service on October 6 to retube the condenser. The unit was returned to normal service on October 9 after repairs were satisfactorily completed.

Process pump motors No. 8 at Building 190-B and No. 9 at 190-DR failed during attempted starts during the month. Pump motor No. 12 at Building 190-DR was found to have a burned phase coil splice during a routine inspection. These units have been repaired and returned to service. Inspections, conducted as a result of the above failures, indicate general deterioration of the coil assemblies of the Building 190-DR motors. Corrective action is being taken during preventive maintenance overhauls, insofar as is practical, both at Building 190-DR and at Building 190-H, since these motors were manufactured at the same time.

C. Improvement Experience

The most significant Production and Process Test activities are reported below:

PT-105-313-2M (Irradiation of Eight-Inch Uranium Slugs)
Approximately 25 tons of this material were discharged during the month. This is the first significant amount of this material to be discharged. Supplement No. 2 of this test authorized continued production of eight-inch slugs by the 300 Area beyond September 30, 1952, on a production test basis. At month end, the reactors were loaded with eight-inch slugs as follows: B - 36%, D - 42%, DR - 70%, F - 33%, and H - 65%.

PT-105-503-E (Use of Activated Silica as a Coagulantion Aid For Aluminum Sulfate, 100-F Area)

PT-105-508-E (Use of Alum as a Process Water Coagulant in 100-D Area)

PT-105-509-E (Effect of Low pH Alum Treated Water on Pile Operation, 100-D Area)

The above three tests concerning the general water treatment problem continued satisfactorily during the month. The alum water treatment process, with and without silica as a coagulant aid, continued to be competitive with the ferric sulfate process in cost of chemicals. Boiling limits on tubes of the latter test restricted operating level somewhat, resulting in an estimated production loss of approximately 100 MWD.

PT-MR-105-4 (Radiation Effects of Removal of End Cap Shielding Slug)
The shielding slugs of the front face caps of 46 tubes at B Reactor have been removed to observe radiation during reactor operation.

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C. Improvement Experience (Continued)

One new and seven revised Reactor Operating Standards were approved and issued during the month. These were prepared primarily to provide for operation of C Reactor and included a standard for the Ball 3X System.

The by-pass switches for the control Beckmans at D, DR, F and H Reactors were replaced with a more reliable switch and the circuits were modified so that an attempted by-pass of more than two Beckmans at a time will scram the reactor. Similar changes will be made at B Reactor in the near future.

Installation of the control circuits to provide for "non-acceleration" of the Building 190-B primary steam turbines on loss of normal electric power was completed and tested satisfactorily on October 6.

There were no inventions or discoveries reported by Reactor Section personnel during October.

D. Events Influencing Costs

An increase in the Reactor Section force of 18 employees, principally to meet 100-C Area requirements, will correspondingly increase labor costs.

Water treatment chemical consumption was approximately 25 percent lower than in September. This is attributed to increased experience with the alum treatment process and normal seasonal changes in raw water. However, coal consumption increased approximately ten percent due to cooler weather.

The Reactor Section irradiation unit cost for October is expected to be a new record low due to the record production attained. Unusual maintenance costs are expected to be lower than during September.

E. Plant Development and Expansion

1. Project Status

The most significant Reactor Section project activity is reported below. Further details concerning projects may be found in the report, "Status of Reactor Section Projects, Informal Requests and Budget Items," dated October 20, 1952.

CG-420 (CO_2 Bulk Storage Facilities)
The Building 110-B installation was made available October 1. One truckload of liquid CO_2 was unloaded successfully into the storage tanks on October 13, 1952. The 100-D and F Area facilities are not yet available.

CG-431 (100-C Plant)
Construction of 100-C Area was essentially completed during the month. Atkinson and Jones Company turned

1. Project Status (Continued)

CG-431 (Continued)
over remaining unfinished Building 105-C and Water Plant work to Minor Construction forces on October 19 and 31, respectively. At month end 43 Building 105-C and three Water Plant acceptance tests had not been completed.

CG-438 (Ball 3X Facilities for B, D, DR, F and H Piles)
Preparation for this work continued during October. F Reactor is scheduled to begin its outage for this installation on November 17. Anodizing of approximately 150 process tubes for installation during the outage was successfully completed.

CA-475 (Crossheader Pressure Monitoring - 105-B, D, F, DR and H)
All work on this project was finished during the month.

CA-512 (100-K Facilities)
The KW Reactor and 100-K Water Plant designs are approximately 41 and 27 percent complete, respectively. Details concerning this work are contained in document HW-26103.

2. Plant Engineering

A number of engineering and development studies were active in the Reactor Section during October. These studies are, in general, aimed at decreased costs and/or increased production. Details are given in documents HW-26098 and 26103. The most significant are reported below:

In summarizing data for a report on the boiler performance tests which have been carried out at Building 184-H, curves have been prepared correlating the CO_2 and O_2 analyses for various types of coals used at Hanford. These curves are being prepared for issuance as standard guides for boiler operation.

Silica gel moisture detection equipment was put into operation at F Reactor following the October 6 outage in which a process tube water leak was corrected. Results to date indicate this installation will be useful for the detection and location of tube leaks.

F. Significant Reports

1. Routine

October monthly reports of Reactor Section Units will be found in the following documents: Operations Unit - HW-26119, Process Unit - HW-26098, Plant Engineering Services Unit - HW-26103, Radiation Monitoring Unit (Technical Report) - HW-26124. The Power and Maintenance Unit Monthly Report is not documented.

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F. Significant Reports (Continued)

1. Routine (Continued)

Other routine reports were:

"Slug Jacket Failures During October" - HW-26061.
"Production Summary - October" - HW-26106.

2. Non-Routine

"Six Months Post Acceptance Report, Project M-608 - Differential Thermohm Systems for Power Level Measurements, 105-B, D, DR, F and H Areas" - HW-25890.
"Decontamination Equipment and Techniques" - HW-25951. (Revision of HW-25190 to permit off-site distribution.)

III. PERSONNEL

A. Organization

There were no appointments made in the Reactor Section during October.

The assignment of personnel to 100-C Area facilities was completed during the month in anticipation of completion of these facilities early in November.

B. Force Summary

	Beginning of Month	End of Month	Net Change
Section General	3	3	0
Operations Unit	254	262	8
Plant Engineering Services Unit	21	18	- 3
Power and Maintenance Unit	833	844	11
Process Unit	35	34	- 1
Radiation Monitoring Unit	57	60	3
Section Total	1203	1221	18

Changes during October consisted of 3 terminations, 9 new hires, 4 deactivations, 3 reactivations, 3 transfers out, and 16 transfers into the Section.

C. Safety Experience

One sub-major injury, No. 230, was sustained by a Reactor Section Heavy Equipment Operator on October 22 at Building 105-C. The employee's right little finger was fractured and dislocated while unloading a stevedore truck from a power wagon.

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C. Safety Experience (Continued)

On October 3, 1952, chlorine gas was allowed to escape through the fire and sanitary water lines into Building 105-C. The lines were being treated for sanitary reasons by construction forces. Approximately twenty Reactor Section employees were treated for minor injury in connection with this incident. Considerable emphasis has been placed on the safe handling of chlorine in Power sub-unit safety meetings.

In conjunction with Fire Prevention activities during October, all 100 Areas were inspected for potential fire hazards. Off-standard conditions noted are being corrected.

D. Radiation Experience

No employee of the Reactor Section received a known exposure in excess of 300 mrem per week during the month.

There were two Radiation Incidents during October; both were Class I incidents which occurred at 100-F Area. Radiation Incident No. 42 involved potential over-exposure to an Operations Unit operator who stood three feet from a process tube as an irradiated slug was withdrawn into a cask. No. 43 involved potential over-exposure to an Instrument employee when a process gas line in an instrument cubicle of Building 115-F was broken causing gas to be released. Investigation reports are contained in documents HW-26069 and HW-26125, respectively.

In applying the recently issued Radiation Protection Standards to Reactor Section facilities, it was decided to make the entire Building 105 exclusion areas into radiation zones in order to facilitate application of these standards. This policy will be established when the necessary signs have been procured.

E. Personnel Activities

At month end, 20 employees are receiving on-the-job training in order to meet future engineering and supervisory personnel requirements of the Section. Sixteen of these employees are on assignment under the Rotational Training program.

Three KAPL trainees began training assignments in the Reactor Section during October. These employees are preparing for responsibilities associated with West Milton operations.

Trips made by Reactor Section personnel during October included: P. C. Jerman attended the Health Physics conference sponsored by the Atomic Energy Commission at Idaho Falls, October 16-18; R. J. Bursey and R. Willing assisted in the process tube anodizing program at the Columbia Electric and Manufacturing Company in Spokane during the periods October 16-24 and October 21-25, respectively; T. M. Clement assisted in recruiting Instrument Mechanics at Denver, Colorado, October 7-9.

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November 10, 1952

MANUFACTURING DEPARTMENT
SEPARATIONS SECTION
OCTOBER, 1952

I. RESPONSIBILITY

Responsibility for the Redox and Metal Recovery and the 234-5 Analytical Control Laboratories was transferred from the Engineering Department to the Manufacturing Department effective October 1, 1952. Concurrently, radiation monitoring responsibilities for these laboratories were transferred from the Radiological Sciences Department.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

a. Bismuth Phosphate Operations

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in Canyon Bldgs.	0	0	22	1	22	1
Charges completed in Conc. Bldgs.	0	1	22	1	22	2
Special Charges - Conc. Bldgs.	0		11		11	
Charges completed-Isolation Gldg.	0	0	15	1	15	1
Average Waste Losses, %	-		2.97		3.23*	
Special charges-Isolation Bldg.					11	
Material balance, %					100.1*	
Yield through process, %					96.9*	
Average cooling time (days)					71	
Minimum cooling time (days)					61	

*Includes B Plant equipment flushes

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b. Redox Operations

	October	September
Charges started	112.3	149.8
Charges completed	109.4	145.3
Tons Uranium delivered to storage	71.9	94.9
Average Production Rate Per operating day, Tons	3.56	3.72
Average Daily Operating Rate for the month, Tons	2.33	3.27
Average yield, %		
Uranium	97.7	98.2
Plutonium	98.5	101.1
Total Waste Loss, %		
Uranium	1.69	1.28
Plutonium	1.09	1.14
Average cooling time, days	83	73
Minimum cooling time, days	75	66
Percent down time	34.6	14.9

c. 234-5 Operations

	October	September
Batches completed through Task II	279	350
Runs completed through Task III	143	175
Reduction yield, RG	97.7	98.4
Reduction yield, RM	94.0	94.6
Waste Disposal, units	3.1	1.5

d. UO_3 Operations

	October	To Date
Uranium drummed, Tons	98.36	456.86
Uranium shipped, Tons	128.22	442.41
Average cooling time, days	95	
Minimum cooling time, days	89	
Waste loss, %	.35	

e. Power

	October	September
Raw water pumped, gpm	7,554	7,525
Filtered water pumped, gpm	1,257	1,337
Steam generated, M lbs/hr	114	112
Maximum steam generated, M lbs/hr	185	161

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e. Power (Continued)

	October	September
Total steam generated, M lbs.	84,696	80,827
Coal consumed, tons (est.)	5,593	5,552

f. Waste Evaporation

	October	To Date
Gallons feed processed, 200-W	17,000	7,393,000
Percent volume reduction		72.43
Gallons feed processed, 200-E	201,000	4,443,000
Percent volume reduction	68.15	70.36

g. Waste Storage

	Batches
Metal Waste reserve storage capacity - T Plant	262
1st Cycle reserve storage capacity - T Plant	741
Metal Waste reserve storage capacity - B Plant	576
1st Cycle reserve storage capacity - B Plant	109
Redox Waste reserve storage capacity	2,300

h. Analytical Control

Laboratory	Samples	Determinations
T Plant	277	560
Isolation	474	1,038
Standards	1,277	1,856
Redox and TBP	5,071	11,227
234-5	692	3,550
Total	7,791	18,231

2. Activities

a. Redox Processing

At the beginning of the month, high Pu content of the U product resulted from erratic 1S performance combined with operation of 1B column @ 75% of flooding (4.5 T/D). Upon shutdown of 1S, feed valve failure caused one waste batch containing 32 units to be diverted to rework. Following 3D column replacement, a number of attempts to increase 1A column rates from 3.0 to 3.5 T/D resulted in flooding. 1A feed and 1A feed tank flushes recycled to the Head-end were reprocessed through extraction containing 0.15 percent by weight of solids. Failure of centrifugation to remove these

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a. Redox Processing (Continued)

solids and accumulations in the 1A feed tank from subsequent batches were responsible for 1A column gradual decrease in capacity between flushes. Solids buildup and recurring 1A floods also produced high activity in the Pu end product. Activity increase in UNH was slight due to 3D purification column performance.

b. TBP Processing

After making a series of cold runs and extensive equipment modifications during the month, at month's end the TBP plant was being readied for "hot" operation on November 1, 1952. The last few cold runs processed indicated that RAW losses of less than one percent could be expected at nominal operating rates (2.5 tons/day) on both A and B lines.

c. UO_3 Processing

Operation of the calcination furnaces was normal during the period except for severe caking which occurred late in the month. This difficulty appears to be due to impurities in the UNH feed resulting from equipment clean-outs and the production of substandard material after resumption of operation in both the UO_3 and TBP plants. It is believed that the problem will disappear when better quality feed is available.

d. Waste Metal Removal

Sluicing activities were conducted normally at 241-UR except for the period October 9 through 23, during which time a pump failure necessitated a shutdown.

All preliminary activities were completed and operations started at 241-CR. Homogenization of supernate and transferral of 500,000 gallons of this material to 109-C was made without incident. Sluicing activities have been started and four blend batches have been made.

e. 234-5 Processing

Approximately 81 percent of the 234-5 Building production for the month was processed through Tasks II to V of the RMA Line with about 37 percent of the coating being accomplished in Task VII.

3. Special Operations

a. Fog Dispersal

Investigation of satisfactory methods of fog dispersal in tanks being sluiced disclose that fogs of this type can be dispersed if a drop in

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a. Fog Dispersal (Continued)

temperature of 31.5 degrees can be made. This can be accomplished by spraying water into the tank, by spraying steam in the tank followed by air, or by introduction of a quantity of carbon dioxide gas. The water method has the disadvantage of increasing the volume of the system. The steam and air method will work but requires more time than the water method. The carbon dioxide method has not been completely investigated but has given excellent results in local areas using small volumes of gas. A more conclusive test will be conducted at 241-UR.

b. Product Recovery, T Plant

An acid wash (T-12-09-AW-1), started in Section 7 of the Canyon Building, recovered 54.15% of a Standard Run in processing through the Canyon and Concentration Buildings.

An ANN solution, containing 20% of a Standard Run, was added to the acid wash in the second cycle product section of the Canyon Building. It resulted in a high crossover by-product waste in the 224 Building of 1.62% which was successfully reworked to 0.24% of a Standard Run.

c. Production Test, 234-5 Building

Production Test 235-8, which will evaluate the use of a pressurized argon purge of the reduction bomb instead of a vacuum purge, was started during the month on the RM Line. On the nine runs processed to date, the results have been satisfactory.

d. Hydrofluorination, 234-5 Building

Hydrofluorination for most of the charges processed during the month was carried out by diffusion of the gas into the powder rather than drawing it through the filter boat and material. Rehydrofluorination for charges thus processed was approximately 20 percent Five batches were processed by drawing the gas through the filter boat and material; these runs processed normally. One batch was processed using a reverse flow of gas (gas admitted at the base of the boat and forced up through the boat and powder), however, a normal refluorination was necessary to obtain an acceptable powder. This was probably due to the very low rate of gas flow used, to prevent powder from blowing out of the boat. Some additional testing will be done during the coming month.

e. B Plant Clean-up

The acid flushes of B Plant process equipment have removed all but minor amounts of product from the inside of the process tanks. Acid washes, in conjunction with citrate flushes, have recovered a net total of 271% of a standard run since the time of discontinuance of regular production.

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4. Schedule Variance

Redox production was 96% of the amount forecasted in the October Annual Forecast. T Plant produced 100% of its forecast.

The 234-5 Building produced the commitment for assemblies.

The UO_3 Plant produced 131% of the forecasted amount.

B. Equipment Experience

1. Operating Continuity

Redox was shut down from October 1 to October 5 while replacing the 3D column with a spare column having 1" thin wall ring packing and additional piping for introduction of scrub streams at three points in the scrub section. Redox was again down from October 9 to October 12 for replacement of the D-12 waste evaporator necessitated by a leaking coil. Trouble with the 1A feed rotometer delayed this latter start-up.

Due to operating difficulties and the necessity for making repairs, the 242-T Waste Evaporator did not operate during October. The next work planned is re-evaporation of evaporator concentrates. This work cannot progress until coil leaks are repaired and a new means is provided for disposing of cooling water and steam condensate.

The 242-B Waste Evaporator lost ten days as a result of a feed pump failure.

2. Inspections, Maintenance and Replacements

a. Redox

Efforts to correct heater difficulties in the reactivated original B-3 silver reactor failed and this unit was removed and stored for decay curve study to determine the feasibility of making repairs to the heaters at a later date. The recently fabricated spare silver reactor was installed in C cell on 10-30-52. One of the three heater circuits to the unit was found open, presumably due to jumper wiring difficulties. Efforts will be continued to correct this difficulty.

Considerable difficulty has been experienced with the Yarway traps on the dissolver coils. It is also believed that they have been a factor in lengthening the dissolvers' time cycle in completion of cuts. A program is underway to replace these traps with suitable pressure relief valves.

Work on the project to provide adequate condenser capacity for the 241-S waste storage tanks was started on 10-13-52 by Minor Construction.

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b. Waste Evaporator

Soon after starting re-evaporation at the 242-T Waste Evaporator, it became apparent that there were coil leaks. Investigation indicated that all were leaking at a noticeable rate. They are to be repaired or replaced in the near future.

The cast iron, bell and spigot, cooling water - condensate discharge line to the retention basin, which has leaked badly for some time, had to be removed from service due to contamination being carried out to the line and into the surrounding soil. This line will have to be replaced before the concentrator can be operated again.

c. Metal Removal

On October 9, failure occurred to the 101-U pump after a total of 954 hours had been logged on this unit. Failure occurred when the tie bolts which connect the pump and motor to the cable sheave broke, allowing the complete assembly to drop to the tank bottom. As the pump was positioned very close to the tank bottom at the time of failure, no damage was sustained to the tank liner. After careful survey of the situation and thorough preparation, the assembly was successfully removed from the tank without incident on October 23, 1952.

When blending operations were started at 244-CR, excessive nitrogen oxide fumes emitted from around the instrument and sample risers forced a shutdown of operations. A recheck of the ventilation system failed to disclose any apparent reason for this condition. All tanks seem to have adequate vacuum and the air flow appears normal. Operations have been continued on a temporary basis by sealing off the instrument risers and the sampler drain line until steps can be taken to correct this serious condition. The problem has been referred to the Engineering Department for study and recommendations.

d. TBP

Replacement of bottom graphitar bearing assemblies was necessary on four of the six 14' agitators on 3-1, 3-6 and 4-1 tanks. Failure of three of the bearings is attributed to a siliceous material apparently introduced with the sodium nitrate used in feed makeup for "cold" operation. Bearing wear was excessive in each case and "sand" was removed from the torque tubes of the failed units. One unit, A-4-1-1, failed when a coupling pin loosened, permitting the weight of the motor shaft and armature to rest on a bearing not designed for the load.

The work involved in preparation for remote operation was approximately 98% complete at month-end. Final cleanout of the canyon, disposal of miscellaneous equipment and final equipment checks were scheduled for early completion.

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e. B Plant

The repair of the "B" Plant Section 18 centrifuge, removed from service several months ago due to a bearing failure, was completed during the current month. The repair of this unit was made possible by operating personnel who were successful in reducing radiation and contamination levels to a level permitting direct maintenance.

f. Export Water Line

On October 28, the export water line from the 2901-Y to the 282-W Building in 200 West Area was removed from service from 2:40 p.m. to 4:40 p.m. to repair a leak at the 6" by-pass valve in the 282-W Inlet House. The Operations Unit was requested to curtail water consumption without interfering with production, which enabled the service to be maintained throughout area from the supply in the reservoir.

C. Improvement Experience

1. Process Tests and Revisions

a. Use of Filter Sticks

A filter stick of 20 micron porosity was installed in the P-1 tank of Cell 4 to replace the 65 micron porosity filter stick. On fourteen runs, the new filter stick has decreased average recycle results from 10.5% on the 65 micron stick to 4.9%. Decantation time has increased from an average of 13 minutes with the 65 micron stick to 19 minutes. The use of a filter stick in Cell 4 has increased the purification by a factor of 15 because the tank can be decanted to 2.0 liters volume now, where 4.5 to 6.0 liters was the previous decant volume. The P-2 samples of 15 runs showed an average lanthanum control of 5.3×10^4 ppm compared to an average of 8×10^5 ppm before the filter stick was installed.

The successful operation of filter sticks in Cell 4 has permitted elimination of the N-2 filtration in this cell. This, in turn, has made it possible to place the P-1 and P-2 tanks in parallel operation. Equipment alterations are currently being made to parallel these two tanks.

b. Plutonium Analysis

Dissolution of plutonium metal prior to analysis for fluoride content is accomplished with perchloric acid under controlled conditions. Recently the reaction was allowed to proceed too rapidly and the excessive pressure build-up broke the quartz distilling flask. Accordingly, the fluoride method was revised on October 22 to allow addition of perchloric acid through the thermometer opening instead of through the constricted steam delivery tube to a semi-closed system. Removal

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b. Plutonium Analysis (Continued)

of the thermometer during dissolution of the plutonium permits safe dissipation of the liberated hydrogen gas and averts a hazardous situation created by a possibly explosive mixture. Loss of fluoride from this change is considered to be negligible.

c. Capacity Tests - Redox

Capacity studies on the waste concentrator system and the condensate reboiler system were carried out during the past month to determine the type and extent of revisions necessary to meet proposed Phase II plant rates. These tests demonstrated abnormal pressure drop in the vapor line-condenser segment of the systems (68% and 74% of the total drop in the concentrator and reboiler systems respectively) believed caused in both cases by impingement baffle design at the condenser vapor inlet.

2. Adoptions, Inventions or Discoveries

Two reports of inventions were submitted during the month by Separations personnel.

Inventor	Title
C. E. Hirsch	Process Sampler
A. C. Morganthaler L. M. Vik C. F. Setbacken	Application of an Immersible Photo Electric Interface Locater and Turbidimeter for Use in Remote and Inaccessible Places.

D. Events Influencing Costs

1. Labor Variance

Due to reduced production load on the $BiPO_4$ plants, fifteen non-exempt people were given reduction-of-force notices to become effective on November 3, 1952. The majority of these people accepted jobs open elsewhere on the plant.

The maintenance labor costs involved in the repacking of the 3D column in the Redox Plant are being reduced by the use of the "in-capsule" method of repacking suggested. The cost of removal of the column from the capsule, support during repacking, and replacement in the capsule is being saved in the job. Contamination control is likewise being simplified by the adopted repacking method.

2. Material Variance

On October 25, a test was made to determine the feasibility of reducing the air flow in the various zones of the 234-5 Building. The test in-

1197722 DECLASSIFIED

2. Material Variance (Continued)

dicated that a reduction of air quantity was practical and will save between $30,000 and $50,000 annually in electricity, steam and water. The necessary changes are scheduled to be made early next month.

3. Other

The most significant reduction in analytical costs this year has been realized with the shutdown of the 222-T Building laboratory. It was estimated that an annual savings of approximately $113,000 resulted. This step was taken principally for reasons of economy since some supervisory, clerical and analytical personnel duplications could be eliminated as well as building operating expenses. Lending impetus to the move however, was the fact that widely fluctuating analytical loads precluded stable operation and hence stable manpower assignments. Accordingly, on October 9th T Plant control samples were transferred to the 222-S Building for analysis. By October 15, the 222-T Building was clean, capital equipment had been transferred to Technical or moved out to other laboratories as needed, and the building turned over to the Plant Engineering Services Unit as landlord.

The reprocessing of high concentration recycle within the Isolation Building reduced by nine the number of master recycles which would have otherwise had to be scheduled in the 224-T Building.

E. Plant Development and Expansion

1. Project Status

TBP - Project C-362 - Phase II of the project, Waste Metal Removal Facilities, is 94% complete with the TXR and BXYR Facilities in final stages of construction.

Construction of the 284-W Building extension (C-477, Fifth Boiler Addition in 200-W Area) is 65% complete. Installation of equipment was started. All material except the boiler pressure parts is on the job site. A strike at the boiler assembly plant will delay the start-up date from February 11, 1953 to a date equal to the strike duration. The strike is now running into the sixth week. To augment the steam deficiency which may result from the delayed start-up date, steps are being taken to procure three steam locomotives.

2. Plant Engineering

At the request of the Engineering Department a report was prepared outlining the cask car requirements at the time Program X goes into operation. Essentially two basic plans for transporting the ir-

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2. Plant Engineering (Continued)

radiated material from all 100 Areas to Redox and Purex were explored. These plans consist of utilizing (a) two-well cars or (b) three-well cars. On the basis that both Redox and Purex may at times be operating at instantaneous rates, it was determined that a minimum of either fifteen two-well cars or ten three-well cars must be utilized to transport this amount of material.

Initial preparation of Standards in the Redox Plant for essential materials and manpower were begun during the month.

F. Significant Reports Issued

1. Routine

Document	Title	Author
HW-26129	Separations Section - Operations Monthly Report	V. R. Chapman
HW-26128	Separations Section - 234-5 Operations Monthly Report	V. R. Chapman
HW-26132	Separations Section - Process Unit Monthly Report	W. N. Mobley
HW-26121	Separations Section - Radiation Monitoring Monthly Report	A. R. Keene
Unclassified	Separations Section - Power & Maintenance Monthly Report	R. T. Jessen
HW-26146	Separations Section - Plant Engineering Services Monthly Report	C. P. Cabell
HW-25938	Separations Process Committee Minutes	L. M. Knights
HW-26143	Essential Materials - Operations Unit Separations Section	J. P. McBride

2. Non-Routine

HW-25297	Six-Month Operational Report - Redox Production Plant	R. S. Bell by B. D. Wilson
PES #18	Cask Car Well Failure	C. E. Hirsch
PES #34	Hanford Temperature Data	V. P. Madsen
PES #37	Electrical Lighting Cost Reduction	M. Pociluyko

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2. Non-Routine (Continued)

Document	Title	Author
HW-25532	Evaluation of Alternate Proposals to Meet Steam Demands in 200-W Area, Winter 1952-1953.	V. P. Madsen

III. PERSONNEL

A. Organization

In conjunction with the transfer of responsibilities for the Analytical Control laboratories serving the Redox, TBP and 234-5 Plants, sixty-six exempt personnel were transferred from the Engineering Department to the Separations Section on October 1, 1952.

B. Force Summary

	Start of Month	End of Month	Net Change
Section General	3	3	0
Operations Unit	700	683	-17
Power and Maintenance Unit	556	561	5
Process Unit	159	223	64
Radiation Monitoring Unit	76	76	0
Plant Engineering Services Unit	22	30	8*
Section Total	1516	1576	60

*Due to transfer of Contact Engineering functions from Operations Unit.

C. Safety Experience

There were no major or sub-major injuries incurred by Separations employees during October.

D. Radiation Experience

There were no radiation incidents involving uncontrolled spread of contamination or uncontrolled personnel exposure.

In the T Facility, a steam coil leak in the 242-T waste evaporator tank caused ground contamination along the surface above the leaking cast iron pipe which carries cooling water and steam condensate from the Waste Evaporator Building to the 207-T retention basin.

In the Redox Facility, failure of a steam coil resulted in contamination of the 207-S retention basin and the swamp area outside the 200 West Area.

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E. Personnel Activities

C. J. Sheeran visited the Pacific Northwest Personnel Management Association Conference held at Victoria, B. C., October 30 to November 1, 1952. He reports that 245 companies were represented at the meeting and valuable information pertaining to Labor and Union Relations as it affects G.E's operation was obtained.

The presentation of a series of four lectures outlining methods improvement techniques was begun and is being attended by exempt and Chief Operator personnel of the Separations Section. A direct objective of the course will be to train personnel in the application of these techniques in order to achieve further reductions in costs.

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ENGINEERING DEPARTMENT

OCTOBER 1952

TECHNICAL SECTION

A survey has been made of the various designs of new plutonium producing reactors. Of the designs originating at other A.E.C. sites, the light water moderated and cooled reactor designed by the H. K. Ferguson Company and the homogeneous reactor proposed by O.R.N.L. are the most promising from a cost standpoint; the technical feasibility of these reactors has not been demonstrated. The heavy water cooled and moderated reactors designed for the Savannah River Plant are regarded as technically feasible but show little promise of producing plutonium at lower unit cost than present Hanford designs (K reactors). This survey is continuing with the aim of firming up cost estimates for the various reactors and increasing the amount of technical information available here.

A theoretical study has been made of the physics and heat removal properties of uranium pipes cooled by water flowing internally. Preliminary results indicate that large excess reactivity and small neutron leakage may be obtained from such pipes in a graphite lattice. Temperatures below the phase change point in the uranium and below critical temperatures for aluminum corrosion can be obtained with higher power output per tube and with pumping pressures much lower than those of the present Hanford design. These studies are continuing with the aim of providing improved values of some of the important physics constants.

An experiment to obtain data on the effects resulting from enrichment of present piles has been outlined. The preliminary considerations have been based on theoretical calculations and the results from a single test channel loading; observations made during the loading of C Pile will give additional information.

Tests on components of new piles are continuing. Preliminary results indicate that the deformation of the C Pile horizontal control rod cadmium-filled cans may occur in about 20 months of pile operation.

A group of slugs heat-treated in a salt bath were subsequently examined and found to be incompletely transformed. These slugs were set aside and the conditions for heat treatment were changed to insure complete transformation. The suspect slugs are being checked by an ultrasonic method to determine completeness of transformation. It will be possible by means of this test to salvage about 60 percent of these slugs. This equipment has been designed as a go-no go inspection device.

The first results of the in-pile experiments to determine the effects of pile gases on graphite have indicated that carbon dioxide reacts with the graphite in the presence of radiation to give a decomposition product

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adhering to the walls of the tube.

Studies on oxidation rates have indicated that samples of graphite oxidized in the pile increase in surface area to a greater degree than is observed for samples out of the pile.

Economic studies to establish the treating costs for pile water have shown that the cost of treatment with alum and activated silica is lower than the cost incurred when ferric sulfate treatment is used.

Some progress was made in the improvement of RM operation during the month. Task II (hydrofluorination) carried about 70 percent of the production. This was made possible by better control of HF, O_2, and water by the installation of motorized valves.

A modified 3D column was installed in Redox to provide a water scrub of the uranium bearing organic stream. Operation has been satisfactory and preliminary analyses indicate a considerable reduction in metallic impurities.

The RA columns in the TBP plant were given final "cold" shakedown testing. Losses incurred were in the range of 0.5 to 2.0 percent for operating periods of up to 72 hours and rates of 2.5 to 3.5 t/day.

The first successful etching and metallographic examination of irradiated uranium has been achieved. In comparison with unirradiated uranium, the material which had been irradiated for 240 MWD/ton showed under microexamination slight grain growth and an increased prevalence of twin bands. The latter is usually associated with mechanical deformation. The irradiated material was also more brittle than normal uranium, confirming earlier suspicions that this would be the case.

Previous data have indicated that when uranium is rolled under certain conditions there is a tendency to impart to the rod a preferred orientation of a type which will exist even after a beta heat-treatment. Orientation studies of experimentally rolled uranium, subsequently beta heat-treated at different temperatures and times, indicate that there exists a persistent orientation with the (100) poles in the rolling direction.

Exponential pile study of a 6-3/16 inch graphite-uranium lattice loaded with standard Hanford slugs is in progress. Preliminary buckling data indicate the reactivity of the dry lattice to be near unity. Measurement of the buckling with cooling water present is not yet complete but is expected to be higher, thus yielding a lattice whose reactivity decreases with loss of cooling water.

Using two recently developed analytical methods, mercury has been detected in 10 out of 14 suspected jacket areas on irradiated slugs and six out of seven suspected samples from unirradiated aluminum jackets. Quantities found, and confirmed by both methods, were in the range of 0.01 to 0.10 µg.

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Status of the Works Laboratory Area Facilities at month's end was as follows:

Mechanical Development Bldg., CA-406 - Bid invitations covering the proposed Phase II construction for the interior finishing of this building were issued by the Commission on October 21. Bids will be opened on November 25.

Radiochemistry Bldg., CA-381 - 49% complete.

Outside Facilities & Utilities, CA-394 - 86% complete.

Radiometallurgy Bldg., CA-385 - 85% complete. Construction progress to date indicates that beneficial occupancy may be realized on or before January 1, 1953.

Library & Files Bldg., CA-421 - The formal inspection of this building was held October 31. Major exceptions such as the air conditioning balancing and run-in were noted. Several miscellaneous small items are to be corrected.

Pile Research & Development Bldg., CA-414 - 57% complete. Installation of the Hausermann partitions was started in the first and second floor office area.

DESIGN SECTION

Direct engineering effort of the Section for October was distributed approximately 67% to the expansion program, 23% to other design projects and 10% to research and development studies. This represents an increase of 5% in the effort devoted to the expansion program and a corresponding decrease in other design projects.

Design progress for CA-512-R, 100-K Reactor Facilities, was 6.3% during the month with design completion 42.6% at the end of October. The estimated number of detail drawings required for the project is 1,526. Of this number, 342 have been approved.

The Title I and Title II design for CA-512-W, 100-K Water Plant Facilities, being performed by C. T. Main, is approximately 38% complete, an advance of 9% during October. Twenty-eight scope drawings have been received from the Architect-Engineer, of which 22 have been approved to date. One hundred and four detail drawings have been received, of which 56 have been approved to date.

The preparation of the study stage Project Proposal for CA-513, 200 Area Production Facility, was in the final stages at the month's end. A draft of the proposal is scheduled for comment issue the early part of November with the final issue scheduled to be transmitted to the A.E.C. November 30. This proposal will include a Purex Facility, UO_3 Capacity Increase and 234-5 Modernization.

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Progress on the Purex Facility design scope for the month was approximately 18.9% with completion to date 60%. The rate of progress for design scope has been retarded during the past month due to lack of process information on solvent treatment necessary to firm up process flow diagrams. A revised design scope schedule was issued extending the estimated completion date to January 18, 1953.

Preparation of the study stage Project Proposal for CA-514, 300 Area Expansion was completed. Design scope was advanced to 18% complete and three scope drawings have been approved to date.

Design of the Recuplex Installation, CG-496 is approximately 35% complete, an advance of 8% during the month.

The scope designs for the several proposed slug canning machines were reviewed with engineers from the Cleveland Equipment Works. On the basis of this review and evaluation, work is continuing on the most promising design.

PROJECT SECTION

At month's end, construction completion status of major projects was as follows: CG-349, Hot Semiworks, 100% (with exceptions assigned to Minor Construction for completion at start-up); CA-362, Waste Metal Recovery (TBP), 98.1%; CA-431-A, 100-C Production Facility (Waterworks), 99.5%; CA-431-B, 100-C Production Facility (Reactor), 99.5%; CG-438, Ball Third Safety System, 14%; CG-483, Downcomer Repairs in 100-B, D, DR, H, and Replacement in 100-F, 25%; CG-506, Repairs to 100 Areas Retention Basins, 5% (no change).

There was a marked decrease in voluntary terminations of CPFF contractors' personnel. Percentage of terminations in October was 1.4%. Two work stoppages, one of which caused a serious delay at 105-C, occurred and were settled during the month. One jurisdictional dispute at 100-K Area was settled without work stoppage.

Inspection Services Unit completed both sessions of its orientation and training program for inspectors. The participants were enthusiastic about the value of this program in improving their ability to provide more efficient inspection service.

Minor Construction accepted 14 work orders, some work on CG-482 (Pile and Pile Plant Improvements), and on October 20, 1952, responsibility for completing construction work on the 105-C Reactor. In the latter part of the month, the Unit made preparations to accept responsibility for completing construction work on the 105-C Waterworks. Total value of work now assigned to Minor Construction is $11,500,000, of which $3,400,000 remains to be accomplished.

Project CG-349, Hot Semiworks, was closed out on October 6. Sufficient funds remain for possible alterations to the jet sampling system.

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As-built drawings of 100-C Waterworks are about 85% complete. Most T. C. buildings have been removed from the area. Only three acceptance tests remain to be completed on this facility. Punch list exceptions are to be cleared by Minor Construction forces, beginning November 3, 1952. All buildings are being operated by the Manufacturing Department.

Acceptance testing disclosed the need for several modifications to the 105-C Ball Third Safety System. There were also the usual final adjustments of relays and the various components of the control systems. Present progress indicates that the unit will be turned over for start-up during the first week of November 1952.

Final acceptance testing for CG-187-E (Redox Laboratory) was held October 31, for the three laboratory rooms that remained to be completed.

Construction on CG-362 (TBP) progressed 2.4% to a total of 98.1%. Following the assignment of this project to Minor Construction forces, there was a considerable increase in efficiency of craftsmen. This was attributed to closer supervision of workmen and more detailed planning of work. Also, for the first time in the history of TBP, the pipefitters and welders were "pushing" the other crafts. With the exception of clean-up items under SWP conditions in Tank Farms BX, BY, and T; and some work in the BXR and TXR Areas to be completed by Minor Construction forces, construction work has been completed.

Plant operations in Building 221-U are scheduled to begin November 1, 1952.

ORGANIZATION & PERSONNEL

Total on Roll, October 1, 1952	1,498
Accessions	39
Separations	95
Total on Roll, October 31, 1952	1,442

T. G. La Follette was appointed Manager, Project Services, vice J. G. Carriere who resigned during the month.

Sixty-six exempt personnel were transferred to Manufacturing Department rolls in conjunction with the transfer of laboratory analytical services in support of manufacturing operations. Effective October 25 operation of the Technical Stockroom in Bldg. 3706 was transferred to the Utilities and General Services Department and five non-exempt personnel were transferred to that Department's rolls.

A. B. GRENINGER, MANAGER
ENGINEERING DEPARTMENT

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ENGINEERING DEPARTMENT

CONTRACT ACTIVITIES

During the month of October 1952 the following contract activities were handled by the Engineering Department:

1. A proposed contract between General Electric and the Aerojet Engineering Corporation for design assistance has been approved by the A.E.C. Contract Board and sent to Aerojet for execution after being executed by General Electric. Two copies of the proposed contract were sent to the A.E.C. in Washington for their approval. Latest word from Aerojet indicates that they have lost several men whose services were proposed for work at Hanford. It is doubtful at this time if sufficient men will be available to meet the requirements of the Design Section.

2. In response to a request from the General Electric Company for National Carbon Company to forward a proposal covering an extension of Special Agreement No. G-3 for an additional period of one year, a proposal was received from Dr. L. M. Currie of National Carbon on October 27. National Carbon Company's proposal contains several controversial ideas and the proposal is being studied and discussed.

3. A modification has been written and is being processed to modify Subcontract No. G-182 between General Electric and Combustion Engineering Company which will settle all differences existing between the parties to the contract.

4. Modification No. 1 to Special Agreement No. G-5 between General Electric and National Carbon Company covering the supplying of additional special graphite was executed by General Electric on September 18; approved by the Commission on September 30 and executed by National Carbon Company on October 9, 1952.

5. Special Agreements Nos. G-10 and G-13 with Battelle Memorial Institute covering additional research programs were executed by General Electric and the Commission on September 30, 1952. Both Agreements were executed by Battelle on October 7, 1952.

6. Modification No. 1 to Subcontract No. G-396 between General Electric and Reed College, covering additional research work over the period of the next year, was executed by Reed College on October 1; executed by General Electric on October 6, and approved by the Commission October 15, 1952.

7. The Commission advised that it did not wish to have Subcontract No. G-400 covering the rental of Xerox reproduction equipment extended inasmuch as the Commission desired to place its own purchase order for rental of theXerox equipment.

1197732

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8. In connection with Special Agreements G-5 and G-12 between General Electric and National Carbon Company, covering the supplying of special graphite, the Technical Section of the Engineering Department has agreed with National Carbon Company on various desired changes in the physical and process specifications and the operating procedures for the special graphite. Modifications to Special Agreements G-5 and G-12 are being drafted to incorporate the required specification and procedure changes.

9. A proposed agreement has been drafted between General Electric and the University of Oregon Medical School under the terms of which General Electric would provide field training for graduate nurses. The Agreement has been sent to the Medical School for execution.

10. The claim of Morrison-Knudsen Company covering labor escalation arising under their Subcontract No. G-303 has been audited and found to be payable under the terms of that subcontract. A modification has been drafted to permit the payment of the claim.

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ENGINEERING DEPARTMENT

TECHNICAL SECTION - GENERAL

Advanced Pile Studies

A survey has been made of the various designs of new plutonium producing reactors. Of the designs originating at other A.E.C. sites, the light water moderated and cooled reactor designed by the H. K. Ferguson Company and the homogeneous reactor proposed by O.R.N.L. are the most promising from a cost standpoint; the technical feasibility of these reactors has not been demonstrated. The heavy water cooled and moderated reactors designed for the Savannah River Plant are regarded as technically feasible but show little promise of producing plutonium at lower unit cost than present Hanford designs (K reactors). This survey is continuing with the aim of firming up cost estimates for the various reactors and increasing the amount of technical information available here.

A theoretical study has been made of the physics and heat removal properties of uranium pipes cooled by water flowing internally. Preliminary results indicate that large excess reactivity and small neutron leakage may be obtained from such pipes in a graphite lattice. Temperatures below the phase change point in the uranium and below critical temperatures for aluminum corrosion can be obtained with higher power output per tube and with pumping pressures much lower than those of the present Hanford design. These studies are continuing with the aim of providing improved values of some of the important physics constants.

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PILE TECHNOLOGY UNIT

OCTOBER, 1952

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VISITORS AND BUSINESS TRIPS

Visitor	Date	Address	Purpose
W. S. Brown	10-1/17-52	Argonne National Laboratory	Consultation in regard to installation of gas analysis apparatus on ANL-140
C. Mannal	10-7-52	Knolls Atomic Power Laboratory	General assistance to Hanfrod Program
M. Norby	10-28-52	International Business Machine Company	To repair IBM equipment
W. E. Kingston	10-1/3-52	Sylvania Electric Products	Discuss canning techniques
B. W. Dunnington W. L. Worth	10-29-52	DuPont	Discuss ruptured slugs

Name	Date	Place Visited	Purpose
W. T. Kattner	10-2/8-52	National Lead of Ohio	Discussions and observations on the metallurgy of uranium
	10-9/10-52	Mallinckrodt Chemical Works	Discussions and observations on the metallurgy of uranium
	10-13/15-52	National Lead of Ohio	Discussions and observations on the metallurgy of uranium
	10-16/17-52	Argonne National Laboratory	Discussions and observations on the metallurgy of uranium
H. R. Gardner O. W. Rathbun	10-6/24-52	National Lead of Ohio	Discussions and observations on the metallurgy of uranium
M. A. Ryan	10-17-52	Battelle Memorial Institute	Consultation on uranium metallurgy

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1197736

Name	Date	Place Visited	Purpose
H. L. Mars	10-3/8-52	Knolls Atomic Power Laboratory	Fuel element consultation
	10-3/8-52	General Engineering Laboratory	Fuel element consultation
	10-3/6-52	Massachusetts Institute of Technology	Fuel element consultation
J. R. Townsend W. C. Riley J. C. Ballinger D. H. Curtiss L. P. Bupp	10-1/3/-52	North American Aviation, Inc.	Technical discussions in a symposium on graphite irradiation
D. B. Lovett A. T. Whatley	10-1/3-52	Phillips Petroleum Company - Idaho Operations Office	Delivery of samples for exposure in the MTR and technical discussions
M. W. Hulin H. F. Zuhr	10-6/8-52	Argonne National Laboratory	Discussions concerning irradiation programs for Hanford Works
	10-10-52	Aircraft Nuclear Propulsion Project	Discussions concerning irradiation programs for Hanford Works
	10-9/10-52	Oak Ridge National Laboratory	Discussions concerning irradiation programs for Hanford Works
R. L. Knecht	10-1/14-52	Simonds Saw and Steel Company	Observe a fabricating process
	10-25/30-52	Simonds Saw and Steel Company	Observe, supervise, and arrange for desired supervision of a fabrication
E. C. Wood	10-16/17-52	Argonne National Laboratory	Technical consultations on non-destructive testing

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1197737

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Name	Date	Place Visited	Purpose
E. C. Wood	10-18-52	New York Operations Office	Discuss fuel element testing
R. A. Rohrbacher	10-13/16-52	Westinghouse Electric Corp. - Atomic Power Division	Inspection and consultation regarding rectilinear manipulator
P. D. Wright	10-13/15-52	National Lead of Ohio	Observe treatment of uranium rods
	10-16/17-52	Argonne National Laboratory	Attend meeting
J. W. Riches	10-30/31-52	Argonne National Laboratory	Attend meeting on uranium metallurgy
W. L. Schalliol	10-17-52	Battelle Memorial Institute	Discussions on fuel element development
	10-23-52	Massachusetts Institute of Technology	Discussions on fuel element development program
	10-24-52	National Research Corp. - Cambridge, Massachusetts	Discussion of melting uranium alloys in conjunction with Battelle program
	10-27-52	Ames Laboratory	Discussions on fuel element development program
H. Harty	10-28/31-52	General Engineering Laboratory	Observe operation of electromatic ball conveyor
	10-29/30-52	Knolls Atomic Power Laboratory	Observe operation of electromatic ball conveyor
J. A. Ayres	10-24/30-52	Electrochemical Society - Montreal, Canada	Attend meeting of Electrochemical Society Symposium on Corrosion
J. W. Goffard	10-16/25-52	American Society for Metals - Exposition	Attend exposition

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197738

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Name	Date	Place Visited	Purpose
R. S. Dalrymple	10-6/8-52	Columbia Electric and Mfg. Co.	Monitor and inspect the anodizing of 200 process tubes
	10-16/24-52	Columbia Electric and Mfg. Co.	Offer technical assistance and inspect process tubes after anodizing
R. B. Socky	10-23/31-52	American Society for Metals	Attend Conference and National Metal Show
W. K. Kratzer	10-18/31-52	Aluminum Company of America	Attend Convention for American Society for Metals and contact Alcoa

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197739

PROCESS CONTROL AND ANALYSIS

Restrictions to Power Level

The operating levels of the piles were limited by vapor binding limits, except for B Pile, which was limited by corrosion limits until the shutdown of October 13, 1952, and isolated instances when fringe tube corrosion limits were limiting at F Pile.

Unit Motion

No unusual unit motion was observed during the month. A report summarizing the unit motion data for all piles for the past year has been completed in rough draft and will be issued shortly.

Process Specifications

A final rough draft of the C Pile reactor cooling water treatment specifications was completed and forwarded for approval. Agreement was reached on the majority of the items delaying the completion of the pile process specifications, and the final rough draft will be issued next month.

Ruptured Slugs

Eleven slug ruptures occurred during the month. Six of these were Group 8 metal charged in central zone tubes, one was a Group 8 metal fringe tube failure, and four were Group 7 metal charged in fringe tubes.

Five of the six Group 8 central tube ruptures occurred in F Pile and the other in D Pile. Three of the failures at F Pile were blistered. The other two failures at F Pile and the one at D Pile were pitted. The Group 8 fringe tube failure occurred at H Pile. The four Group 7 failures occurred at B Pile. Two of them exhibited heavy blistering.

Complete data on the failures which occurred during this month are reported in document HW-26060, " Rupture Slug Data and Comparative Rupture Rates for October, 1952", by L. W. Lang.

100 - 300 Area Process Development Survey

This analysis of potential gains from 100 and 300 Area process development activities has been completed, and a first rough draft circulated for comment. A final rough draft is now being prepared. The information presented should be of assistance in evaluating various technical research and development programs.

Manual of Standard Practices

Item IV, "Location and Evaluation of Temporary Poison Columns", has been completed and will be issued in November. Item V, "Effective Pile Fractions", has been increased in scope. It is now complete and will be issued in November.

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Determination of Over-all Reactivity Coefficient - DR Pile

The study of the over-all reactivity coefficient for DR Pile was continued. A precise determination is made difficult by the lack of reliable calibration data resulting from the immediate high level operation of the pile, with few minimum shutdowns, and is also complicated by past water leaks which tend to obscure the basic reactivity effects.

Pile Atmosphere Leak Detection - Production Test 105-506-A

Because the gas leakage rate had been greatly reduced at the F Pile, the helium leak detecting equipment was transferred to 105-B where all vertical rod thimbles and all process tube bellows on ten rows were checked. Definite leaks were found on five bellows and indications of very slow leaks on about 20 per cent of the bellows on four rows.

Process Channel Thermocouple Stringer - Production Test 105-470-P

Preliminary analysis of the data obtained from the process channel thermocouple stringer at F Pile has been started.

Eight-Inch Heavy Wall Fuel Slugs - Production Test 105-313-2-M

Approximately 4570 tubes of eight-inch metal are now under irradiation. No ruptures occurred during the month, and analysis of the rupture rate by the equivalent exposure method indicates that the rupture rate is as good as that of the best four-inch metal.

PILE PHYSICS

Pile Activation - C Pile

The planning and co-ordination of the technical aspects of the C Pile activation program is complete. All necessary instrumentation and special components have been installed at the C Pile or are held in readiness to be installed as conditions permit. Time schedules have been reviewed with Reactor Section personnel and the original time estimates still appear to be adequate for carrying out the complete programmed effort.[1,2]

Pile Enrichment - H Pile

Preliminary steps have been taken in an experiment designed to determine gains in plutonium production which may be obtained from the utilization of a nominal

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1. HW-25394, "100-C Start-Up Program, Technical-Operational Process Items", 8-20-52.
2. HW-25613, "Supplement to HW-25394, 100-C Start-Up Program, Technical-Operational Process Items", 9-11-52.

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40 kilograms of U^{235} as enrichment for the H Pile. A series of calculations by Applied Research Unit personnel and the results of the single enrichment channel experiment conducted at H Pile have been used as the basis in this work.

The enrichment will be in the form of aluminum-uranium alloy slugs containing four and one-eighths per cent U^{235} which is nominally of 93 per cent isotopic purity - a concentration equivalent to that of the C Pile enrichment material. Material of this concentration has the virtue of dissipating about the same specific power as natural uranium in an equivalent neutron flux. The enrichment will be loaded in the central portion of about 100 channels distributed in a ring about the central pile zone and positioned approximately four lattice units in from the reflector. The increase in pile power, and plutonium production will result from the increased neutron flux in the pile fringe regions which this manner of U^{235} utilization makes possible through an extension of the flattened zone radius.

The higher rates of power generation in the pile fringes will require about 3000 gallons per minute additional water flow through the pile; thus raising the total pile requirement to about 48,000 gallons per minute. Approximately 700 tube orifices and Panellit gauges must be modified to accommodate the increased flow. The revised orifice pattern has been developed and presented to Manufacturing Department.

The use of the low density aluminum-uranium alloy will increase the gamma heating in the graphite adjacent to the enriched loading about 50 per cent. It is probable that helium additions to the gas atmosphere will be required to maintain temperatures below 410°C in this region.

Stability to Irradiation - Thorium Slugs - Production Test 105-516-A

Fifty-five of the 90 thorium slugs being irradiated as part of this production test to ascertain radiation stability characteristics of both rolled and extruded thorium metal have received their programmed exposures and were discharged. About half of the 35 rolled pieces discharged at an average exposure of approximately 800 MWD/AT were observed by the Material Examination group to possess evidence of excess surface temperatures. At this exposure the thorium will produce about 25 per cent of the specific power of natural uranium as a result of the U^{233} concentration. These pieces are canned unbonded by the "B" process.

Reactivity Cycle Damping

Plutonium production rate increases of three to four per cent are expected from reactivity cycle moderation at C Pile through scheduling the discharge of irradiated metal on the basis of reactivity contribution as well as accumulated exposure so as to approach a constant pile reactivity "residual". Approximately 20 tons of additional uranium will be required to initiate this discharge schedule. The factors involved are discussed in HW-25897, "Increasing Pile Production by Damping Reactivity Cycles", by G. C. Fullmer.

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197742

Polonium Yield Studies

Refined formulae for use in predicting polonium yields from bismuth irradiations have been developed and reported in HW-25477, "Methods for Predicting Polonium Yields". It has been determined that polonium yield is not appreciably dependent upon the number of adjacent bismuth columns in the range from a single channel to a four channel cluster.

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Ruptured Slug Detection

The experimental slug rupture detection instrumentation, i.e., the delayed neutron detector and the scintillating crystal gamma ray spectrometer, continued to demonstrate good stability during the past month of continuous operation. Both systems are installed to monitor effluent from the near-side riser at H Pile in an effort to ascertain relative performance in the case of an actual slug rupture. No ruptures in the near half of H Pile have occurred since the installations.

Several refinements were made in the crystal spectrometer circuitry during the month. These include the development of components permitting flexible interchange of crystals and electron photomultipliers and the design and construction of a precision variable amplitude pulse generator for use in calibrating critical voltages in the system.

A report discussing the expected operating characteristics of the beta sensitive slug rupture detection system installed at C Pile has been prepared for publication as HW-26083, "C Pile Slug Rupture Detection System", by R. S. Paul. Experimental data obtained at H Pile on a two-chamber mock-up of the C Pile system form the basis for this report and the recommendations contained therein.

Test of Savannah River Fuel Element Jacket Failure Detectors - Production Test 105-523-A

Two slug rupture detection systems developed by duPont personnel for application at the Savannah River site have been installed at H Pile for on-pile performance testing. Sufficient data are not yet available to permit the complete evaluation of either the stability or sensitivity of these systems. It is hoped that some aspects of these systems may prove applicable to the Hanford problem.

Neutron Distribution in a Hanford Slug

Techniques have been developed which are expected to permit a precise determination of the thermal neutron distribution in a natural uranium slug. The measurement will be made by detecting radiations emitted from fission products resulting from fission in uranium pins appropriately placed in a slug and irradiated in the Test Pile. A scintillating crystal gamma ray spectrometer is biased with respect to gamma energy in a manner so as to detect the U^{235} (n, fission) reaction products to the exclusion of the U^{238} (n, γ) reaction products. Experiments to date on irradiated uranium indicate that detection errors can be kept below 0.5 per cent if the instrumentation is appropriately utilized.

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Automatic Tube Temperature Recording Facilities

The DR Pile IBM automatic tube outlet water temperature recording facilities maintained the routine schedule of traverses during the month with but minor maintenance required. The Flexowriter automatic tube outlet water temperature recording facilities at B Pile maintained an unofficial schedule of traverses during the month. The IBM automatic tube outlet water temperature recording facilities at H Pile will be replaced by a Flexowriter installation for the enrichment experiment, so that better flux control and operational data can be obtained. To meet the proposed time schedule it will be necessary to utilize the present B Pile installation. Additional components have been requisitioned and an evaluation of necessary circuit changes is being made.

Development of an improved Flexowriter installation is proceeding. The detailed design of special components has started and the bulk of the off-plant requisitions have been placed. It is anticipated that this improved instrument will serve as prototype equipment for installations at the remaining three piles as contemplated by Reactor Section.

Test Pile - Routine Tests

Regular slug testing proceeded routinely during the month.

Nine lots of Mallinckrodt billet eggs were tested during the month with TDS values ranging from 12 to 16.

Five lots of Fernald billet eggs were tested during the month with four of the lots having TDS values ranging from 14 to 16; the fifth yielded a TDS of 19. The reason for the high TDS value is being investigated.

Five lots of Hanford billet eggs were tested with TDS values ranging from 14 to 15.

Test Pile - Special Tests

Graphite bars from four experimental heats were tested for nuclear purity during the month and the results reported to the interested groups.

A series of measurements were made to determine the effectiveness of lead-cadmium slugs as a function of cadmium concentration. It was determined that a slug containing six weight per cent cadmium is 100 per cent effective with effectiveness slowly decreasing as the cadmium concentration is further reduced.

Test Pile - Program - General

An evaluation of uranium egg testing procedures has been made and placed in rough draft document form. The results of this work indicated (1) that the number of eggs per test should be reduced from 16 to 8 or less, and (2) the eggs should be machined to constant volume.

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A report has also been prepared which gives danger coefficients of uranium impurities. The report refines previous work in light of the most generally accepted isotopic cross sections now available.

Fuel Element Development

Measurements of the effect upon pile reactivity of various alloying elements in uranium and various elemental slug surface claddings are continuing. Sufficient data are now available to permit a comparison of experiment with the theoretical predictions to be made in a few special cases.

SHIELDING STUDIES

Attenuation Studies

The compilation of data from all bulk shield neutron attenuation measurements made to date has been completed and the data analyses are progressing.

Data on the neutron attenuation properties of iron-limonite concrete placed by the "Prepakt" process are now being obtained, the initial measurement being a determination of the distribution of thermal neutrons. Detectors now being activated will yield the five ev neutron distribution.

The fast neutron distributions (> 1 Mev) in iron-masonite as measured in the Bulk Shield test facilities at DR Pile show excellent agreement with distributions previously determined at D Pile. These data fit a single collision model very well, i.e., a single neutron scattering event is on the average sufficient to reduce the neutron energy below the effective threshold of the $S^{32}(n,p)P^{32}$ reaction. Such a model yields values for the effective macroscopic "removal" cross section of 0.45 in. for iron and 0.27 in. for masonite where "removal" refers to removal from the energy band above one to two Mev. These data are quite important because it is just these high energy components which ultimately determine shield thickness.

The fabrication of components to permit the masurement of gamma ray distributions in iron-masonite is complete. The measurement will be initiated as facilities become available.

Radiations Damage Studies

A study of the effects of radiations upon limonite grouts has been initiated. The use of fine limonite in the grouting mixture is a basic practice in the "Prepakt" method of concrete placement.

Preliminary data have been obtained on the rate of water loss from grout equivalent to that used in the C Pile top shield during exposure to pile radiations. These data indicate that in the range of 100°C and above, shield temperature is a more important parameter than exposure in determining water loss. Water loss considerations are important since this is the only manner in which hydrogen is carried in concrete.

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A determination of the water loss from limonite as a function of particle size has been made at 85°C. The data indicate that the maximum loss at this temperature occurs for particles of the sizes most abundant in "Prepakt" grout. This factor may not be of prime importance, however, since only about ten per cent of the water in the limonite is liberated at 85°C for any particle size.

HEAT STUDIES

Tube Boiling Studies

Study of possible tube flow instrumentation by which boiling limits might be relieved was continued.

Additional data on the response time of Panellit gauges were obtained. Tests were conducted in which the flow to the heat transfer mock-up was reduced sharply to extremely low levels so that boiling was initiated. The time for the pressure at the inlet of the tube to decrease and then increase to or above the original pressure was measured. It was found in all experimental cases that this time was on the order of three seconds or greater.

Another possible method of monitoring tube flow is by means of a differential pressure gauge mounted across an orifice or Venturi. A Mercoid type BB differential pressure gauge suitable for this purpose was obtained and bench-tested to determine its reliability and accuracy. The gauge was mounted on a process tube in the flow laboratory and pressure was alternately applied and released. The gauge was cycled 1,500 times in this manner and the calibration then checked. The final calibration was found to be within approximately one per cent of the initial calibration. Since a satisfactory test is considered to consist of only 500 cycles, the gauge offers promise as a suitable process tube instrument. Further testing is in progress, and a slightly superior but similar gauge has been ordered.

In line with the investigation of the pressure gauge, a Venturi was designed and tested in the pigtail of a flow laboratory process tube. The pressure drop from the entrance to the throat for 30 gpm flow was found to 100 psi as anticipated. In contrast to orifices, however, the pressure recovery was about 88 psi. Thus, the use of Venturis in place of orifices would permit higher flows through process tubes for a given header pressure.

Slug Studies

A document on the heat transfer aspects of possible new jacketing materials was prepared jointly with Pile Fuels. Graphs were included showing slug temperatures for an extremely wide range of possible jacket and bonding material heat transfer properties. The document represents the culmination of a series of extensive calculations.

Additional study was given to the end-cap temperatures which may be encountered on slugs of future design under varying conditions of pile power, tube flow, film formation and end-cap thickness. The material is being assembled for publication.

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1197746

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As film builds up on a slug, the surface and end-cap temperatures are both increased. If the film formation in the piles becomes excessive, pile power reductions might be required in order to keep the end-cap temperatures below the saturation temperation of the local water. Calculations are being made to determine the limits which should be placed on permissible film formation when the existing slugs with 0.175 inch end-caps are used.

A study is being made to determine simple methods to permit measurement of slug end-cap temperatures on slugs located in the pile. A possible method is to increase the slug can wall thickness, mill a groove on the surface of the can and weld the necessary thermocouples into the groove. Cans of this type have been prepared and a welding technique is being developed to permit installation of the couples in the groove.

As mentioned above, film or scale deposits on slugs increase the slug temperatures. At the present time insufficient data are available to permit a precise calculation of the temperature drop across such a film. Therefore, additional experimental tests have been instituted to determine more accurately the conductivity of the film and the distribution of the film along the length of a tube. These tests, to be performed on the full-scale tube mock-up, will be of two types. In the first, preheated process water will be passed over the heater tube on which the film will be formed and the conductivity of the film will then be measured. In the second, low temperature water will enter the process tube while heat is being generated in the heater tube. The water will be heated as it passes through the tube, and scale will be deposited on the heater tube in a fashion somewhat similar to the deposition in a pile process tube. Both alum and ferri-floc treated water will be used. Tests are in progress using preheated, alum-treated water. A temporary line is also being run from the DR Water Plant to the 189-D Building to supply ferri-floc treated water for a test.

Additional thermal cycling tests have been conducted to study the effect of induced stresses on slug stability. The cycling times varied from five to ten seconds to raise the heating current to its full value of 15,000 amps and from one-half to one second to reduce the current to zero. Two specimens were cycled 20 times; one, 65 times; and one, 85 times. The results showed no indication of slug distortion or rupture. All tests were terminated by fracture of the bond between the aluminum current-conductor and the uranium. Although the tests do not provide conclusive data, they do indicate that some specimens can withstand conditions apparently much more severe than those encountered in the pile.

Apparatus has been assembled to measure the thermal conductivity of the uranium - Al-Si - aluminum slug bonding layer by heating a specimen on one end and cooling on the other. Thermocouples located along the length of the specimen will measure the temperature drop. The temperature rise of the cooling water will indicate the heat flux passing through the specimen. From these data the thermal conductivity of the bonding layer will be calculated.

An investigation has been started to determine the thermal conductivity of an anodized aluminum layer. Studies have indicated that such layers on the surface of a slug jacket may greatly retard corrosion. Before they can be used, however,

197747 DECLASSIFIED

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the temperature drop which would exist across the layer during operation must be determined. Necessary experimental equipment is being assembled in the 189-D laboratory,and anodized specimens are being prepared by Pile Materials.

Graphite Temperature Studies

The design of components for the permanent channel thermocouple stringers, Project CG-502, was examined and approved during the month. The assembly and method of mounting the thermocouples in the graphite blocks are almost identical to those to be used in Production Test 105-514-A.

Tubes 2166 and 2288 at the D Pile were selected to receive experimental thermocouple stringers. Preparations are being made to discharge the metal from those tubes on the next shutdown and to make a flux traverse. On the following shutdown, the tubes will be removed and the channel stringers installed. The present C Test Hole stringer will be removed on the next shutdown also, and the necessary preparations are being made now. The new test hole thermocouple stringer will be installed on the following shutdown. There will be four thermocouple positions with three different thermocouple compositions at each of the positions. The thermocouple positions will be located in the stringers so that two of them will be close to two selected channel stringer thermocouples. It is anticipated that the tubes surrounding the stringer channels may have to be short-loaded in order to prevent these tubes from limiting pile power level, since the local thermal neutron flux will be enhanced by the removal of the tube and metal from the stringer channels.

The supplement to Production Test 105-514-A to permit installation of two channel stringers in the DR Pile is being circulated for approval. The stringers will be located in tubes 2472 and 2681 which are one tube row away from the presently operating thimble thermocouples mounted on VSR thimbles No. 24 and 26, respectively.

Enrichment of the H Pile is expected to cause a considerable increase in fringe graphite temperatures. Therefore, preparations are being made to predict both the temperatures and the amount of helium which will be required in the pile atmosphere. In addition, plans are being made to assist in the installation of thermocouples in an appropriate test hole to monitor this effect.

General

Enrichment of the H Pile is also expected to cause a significant increase in thermal and biological shield temperatures. In order to determine the actual increase, thermocouples will be installed in the H Pile thermal shield as soon as possible. Tests will be run to determine the temperatures reached in the shields with reduced water flow under present operating conditions. The equipment will then be available to determine the shield temperatures after enrichment.

Preparations are being made to conduct tests of thermal shield cooling tube contact resistance for the Reactor Design and Development Sub-Unit of Process Engineering. The object of the tests is to determine the over-all and contact resistance to heat transfer of various methods of attaching cooling tubes.

1197748

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A more complete study was made of unsteady state temperatures in a pile after the water is drained from a tube during shutdown. The study has indicated that the temperatures reached when a tube is drained will be lower, and that the flow may be removed from the tube for significantly longer periods of time than previously reported.

MECHANICAL DEVELOPMENT STUDIES

Charging and Discharging

The major obstacle encountered to date in the development of continuous charge-discharge equipment has been the occurrence of cocked slugs. This cocking has been attributed to the fact that the slugs must be charged into the tube under full flow conditions. Tests this month using the so-called Tru-Line, or doweled slugs indicate good alignment when allowed to rifle down the tube under flows up to 50 gpm. The original pressurized discharge machine design is not compatible with doweled slugs so it has been discarded and emphasis is being placed on the use of an externally pressurized sphincter seal closure on the tube outlet. Much of the difficulty encountered in charging studies has been attributed to lack of proper lubrication. Means of improving this condition which are being studied include the use of anodized tubes and slugs and coating of the slugs with some material which will wash off after the slugs have been charged.

Investigations are under way to determine if the possibility of buckling of the slug column is increased by the presence of tube distortion or slug irregularities. This is being done by cutting away part of the top of a process tube to permit observation of buckling when forces are applied to the column by hydraulic jacks. Variables which will be studied in various combinations include horizontal and vertical tube bowing, weld overhang, slug warp, and unsquare slug ends..

Horizontal Control Rod Studies

Production Test 105-524-A has been prepared to authorize pre-start-up installation of an alternate type horizontal control rod seal at C Pile. The horizontal rods are now equipped with vertical rod seals which were adapted when the original design proved undesirable. This alternate seal consists of several thin rubber washers which wipe the rod lightly. This design appears to have sufficient promise to warrant an in-pile test.

Additional Control

Installation of the one-tube ink facility is nearing completion on the DR Pile. All of the component parts have been fabricated and most of them are installed. One more shutdown should make possible the completion of the installation. A gas separator with gas rotameters is being provided to determine the amount of gas being formed by decomposition of the solution. Samples of the gas collected will be analyzed to determine its constituents.

1197749

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Vertical Safety Rods and Third Safety

During the acceptance tests of the VSR system at C Pile it was discovered that some of the sphincter seals were being damaged. Inspection of the damaged seals indicated that faulty molding of the silicone rubber was probably the main cause of the failure. The design of the housing which holds the seal resulted in stress points which contributed to the failures. Modifications are being made to the seals and housings which will eliminate these stress points and should prevent failures in the future. Similar modifications are being planned for the DR and H Pile seals which were identical to the C design. The B, D, and F seals are of a different design which does not have this weakness so no modifications will be necessary. The seals tested at the White Bluffs Test Tower did not show any signs of failure, and the tests were considered much more rigorous than would be expected on the piles.

Initial tests on Models X-1 and X-2 of the VSR's for K Pile have been completed. The X-2 rod, which has a solenoid latch in the lifting head, appears to be the most satisfactory. Difficulty was experienced in getting the X-1 rod to remain in the up position. The air cushion method of deceleration, common to both designs, works well if the rod is dropped from the "full out" position. If it is dropped from anywhere less than half-way out, it strikes the bumper assembly very hard. Time displacement curves show the rod to be within one foot of the bottom in 1.7 seconds from the time of release.

Rear Face Television Monitoring

The rear face television mock-up has been completed in the 189-D Laboratory. This mock-up includes a simulated section of a pile back face and discharge elevator. The television camera is mounted on a track so that it can traverse the entire length of the elevator. All motion of the camera, which includes elevator traverse, vertical and horizontal scanning, and focusing is remotely controlled from a console, which in normal operation would be located in the control room. All of the adjustments necessary for television operation would likewise be in the control room. It is planned to give a demonstration for all interested parties in the near future.

Underwater Test Facility

The large underwater test tank has been installed in 189-D Laboratory and will be put to use immediately for testing the new underwater slug air weigher. This should prove to be a valuable asset in the development of equipment for underwater use.

Functional Testing of Neoprene Hose Assembly

A second neoprene hose, similar to the ones now on the back face of C Pile, was removed from H Pile after 68 days of operation. It appeared that the rubber on the inside of the hose had deteriorated to a depth of about one-sixteenth inch. It could be peeled off quite easily. However, the hose withstood a 200 psig hydrostatic test for three minutes.

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IRRADIATION ENGINEERING

High Pressure Water Channel - ANL-M-140

The high pressure water channel facility at H Pile, used to study the behavior of water, prototype fuel elements, and structural materials for the STR design, operated during the month on recirculating water The temperature was reduced on October 23, 1952, due to an oil leak fire hazard. Operation was otherwise routine. Apparatus was set up to permit analysis of gases evolved in the system and vented from the surge tanks.

Gamma Irradiation Program

Gamma irradiation of nonmetallic materials continues in the 105-F storage basin. Comparison of the KAPL gamma monitoring instrument known as the "scrameter" with the high range "totem pole" ionization chamber used at Hanford revealed that the former gave a nine-fold higher reading. This discrepancy is being actively investigated at both sites.

Thermal Conductivity of U-Zr Alloys - ANL-M-172

The experimental apparatus for the in-pile measurement of U-Zr alloy thermal conductivity was discharged this month. No significant change in thermal conductivity had been noted during the approximately seven months of operation.

Fuel Element Irradiation Studies - KAPL-M-111

Irradiation of sample R-8 for the study of the influence of Hanford pile fluxes on the properties of fuel elements proposed for the SIR design was completed. The sample was discharged from tube 1078-DR, and returned to KAPL. Sample R-9 was charged into the same tube for continuation of the study.

Behavior of U^{235} Impregnated Graphite - NAA-M-106 and 107

Exposure of U^{235} impregnated graphite to determine the extent of irradiation-induced outgassing and to study the effect of pile irradiation on the thermal conductivity has been completed. The final assembly was discharged and the test equipment returned to North American Aviation.

Creep Rate of Fuel Pins - KAPL-M-105

Slug assembly number four of this experiment was not charged due to unsatisfactory performance in pre-irradiation tests.

Exposure of germanium "p-n junctions" in contact with a platinum foil containing 0.5 milligrams U^{235} gives rise to voltage generation, even after ten days' exposure. Further study of this behavior is planned.

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Controlled Gas Atmosphere Experiment - C-410

The heater-cooler assembly for the controlled temperature controlled atmosphere irradiation facility is undergoing final pre-installation testing. Fabrication of equipment to provide emergency cooling in event of loss of water flow through the heater-cooler assembly is under way.

Controlled Temperature Exposure of Graphite - Production Test 105-403-P

Exposure of series four graphite samples at controlled temperature continues in its ninth month. Temperature control apparatus for series three, which has been deferred, is in place; and exposure of these samples is scheduled to start next month.

Measurement of Slug Operating Temperatures - Production Test 105-411-A

In-pile measurement of uranium slug temperatures has begun. Several as yet unexplained anomalies have been observed, but in general the central slug temperature of about 280°C agrees with the predicted value.

Control Rod Gas Generation - Production Test 105-525-A

An experiment was performed to determine if free gas is evolved when the canned cadmium components of the C Pile horizontal control rods are exposed to a high thermal neutron flux. Impurities introduced with the cadmium or during the canning operation might result in such gas evolution; and since the cans are sealed, sufficient pressure might build up to distort or even rupture the cans. Preliminary results from an experiment in which a section of a normal canned cadmium component containing about 95 grams of cadmium was irradiated in the Y test hole at H Pile indicate that deformation of the cans might occur in about 20 months of pile operation.

SPECIAL IRRADIATIONS

Status of Special Requests

P-10-A pieces charged	16
P-10-A pieces recharged	232
P-10-A pieces discharged	190
P-10-A reaching scheduled exposure	0
P-10-A damaged, for disposal	1
P-10-A pieces under irradiation	538
P-10-A pieces in storage basin	696
Thorium pieces charged	20
Thorium pieces discharged	145
Thorium pieces being irradiated	630
Thorium pieces shipped during month	0
Thorium pieces held pending shipment	316
Special request samples charged	33
Special request samples discharged	110

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Status of Special Requests (Cont'd.)

Samples being irradiated	352
Samples shipped during October	109
Samples awaiting charging	151
Samples awaiting shipping	14

Single Channel Experiment - Production Test 105-507-A

Repairs and modifications have been made to the flow instrumentation which failed last month. The single channel and its eight associated tubes were loaded with fresh metal and the experiment resumed.

GRAPHITE STUDIES

Stored Energy

The results of stored energy determinations from 18 samples, which were sent to the National Bureau of Standards in December, 1951, have been received. These data are a part of the pile monitoring stored energy program. From a comparison of the bore graphite of 3467-B in April, 1950, and in November, 1951, it is apparent that the stored energy in the fringe regions was increasing, while the greater temperature in the central portion of the pile has decreased the stored energy in that region. It is also apparent that because of its higher temperature, the graphite adjacent to dry tube 2577-H has very low stored energy. The graphite bore of fringe tube 1196-H, because of the lower operating temperature, has about the same stored energy as that in central tube 2970-H in spite of only about one-fourth the exposure.

Graphite-Carbon Dioxide-Helium System - Reaction Rates

One of the factors involved in using mixtures of helium and carbon dioxide as a pile gas is the rate of oxidation of the pile graphite by this atmosphere. Although small amounts of helium in carbon dioxide would not be expected to change reaction rates with graphite appreciably, an experimental determination of the oxidation rate of graphite in various mixtures of carbon dioxide and helium was initiated to check this.

All the necessary apparatus for the determination of comparative graphite reaction rates in carbon dioxide and in carbon dioxide-helium mixtures has been completed and appears to be working reliably. An initial run at 1000°C has been completed using CSF graphite and pure carbon dioxide. As was found in a similar experiment using oxygen, the reaction rate increased with time and apparently saturated after about seven hours of operation at a value of 0.1013 gr/gr sample per day. Using the same sample, the run was continued using purified carbon dioxide with 4.3 per cent helium. Data from this run indicate that no significant difference in the reaction rate has occurred. These runs will be continued to larger percentages of helium. However, it would appear that no great difference in the reaction rates of graphite in carbon dioxide-helium mixtures will be observed.

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Radiation-Induced Reactions

A series of 17 samples were charged into 0776-H on May 13, 1952, to study radiation-induced reactions which might occur with pile irradiation of pure carbon dioxide, carbon monoxide, and graphite plus carbon monoxide. These samples, which were discharged in September after a four-month exposure at about 50°C, have been decanned and various measurements are currently being made. Visual observations of these samples lead to the following conclusions:

a. The samples of pure carbon dioxide exposed in sealed quartz containers with an initial pressure of approximately one-half an atmosphere showed no apparent reaction except for a purple discoloration of the quartz.

b. The samples of pure carbon monoxide and pure carbon monoxide plus graphite, which were also exposed in quartz containers with an initial pressure of approximately one-half an atmosphere showed an obvious reaction which resulted in the deposition of a yellow-brown solid product on the walls of the quartz containers.

Colored photographs of these samples have been taken to show the visual results of the reactions that have taken place. Measurements of the final pressure, volume, and composition of the resulting components are being made so that a material balance may be made and thus identify specific gaseous reactions which have occurred. The results obtained from this experiment will greatly facilitate the evaluation of the gas reactions that might occur between the pile moderator and the pile atmosphere.

X-Ray Diffraction in Monitoring

Graphite specimens have been removed from the bore of a process tube channel in the H Pile and X-ray measurements completed. This process tube channel has operated directly above an air tube for the life of the pile. The degree of the irradiation damage to the graphite along the axis of the sampled channel is less than that measured for other central tubes and may be ascribed to higher temperatures and/or reduced fast flux in the region adjacent to the air tube. These data confirm previous information relating temperature and flux effects to the degree of irradiation damage to graphite and emphasize the environmental effect of an empty process tube in the pile lattice array.

Surface Studies

Surface area as a function of degree of oxidation has been determined for KC graphites oxidized in-pile and ex-pile. For both types of oxidation, the surface area increases up to two per cent oxidation and then appears to saturate. The slope of the surface area vs oxidation for the in-pile oxidation is about twice as great as that for the ex-pile process up to the point of saturation. These curves are interpreted in terms of pores being made accessible by the oxidation and removal of blockages. This information is basic to chemical reaction rate studies which are being made to examine the graphite temperature limit. Present information indicates that the graphite from the piles is somewhat less than two per cent oxidized. Therefore, if the physical surface area is proportional to

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the reaction surface area, one would expect that the rate of reaction in the pile at present is increasing.

Samples have been irradiated in vacua and in atmospheres of carbon dioxide and oxygen. The results which will come from a study of the surface characteristics of these samples will yield further information of importance to the chemical reaction rate studies.

Thermal Conductivity of Gases

In previous work, a break has been found in the plot of log $(T_1 - T_2)$ vs time. To obtain the thermal conductivity by the method being used, one has to use this plot as a straight line. It has been found that parasitic electromotive forces in the measuring potentiometer can account for the break. A method has been found for partially compensating these parasitics, and with this compensation the plot is a straight line and the accuracy of the method is improved.

An improved method of calculating the slope of the line from the data points has been suggested by the Statistics group and will result in a considerable saving of calculating time with no loss of accuracy.

Damage Mechanism - Silicon-Impregnated Graphite

Arrangements have been made for the production of experimental bars of silicon-impregnated graphite. The interest in this material stems from experiments which show that certain impurities in carbon materials which are to be graphitized have considerable influence upon both the ease and degree of graphitization. Thus, it is possible that an impurity might be added to graphite which will catalyze in situ the annealing process. Of the several elements which might serve as such a catalyst, silicon appears most desirable.

Exposures in the MTR at Arco

The first of the graphite samples to be irradiated at Arco have been charged. This experiment will allow some evaluation of the neutron energy dependence of graphite damage. The first charge will yield data for irradiations at temperatures of about 120°C. A new design has been completed for sample containers which will allow irradiations at temperatures of about 50°C.

Cyclotron Irradiation of Graphite

Nearly monoenergetic neutron beams are obtainable with cyclotrons. It is possible to obtain these beams with several different energies. Flux as high as 10^{12} nvt is obtainable. Therefore, the feasibility of irradiating graphite by this means is being considered. Work of this type could yield valuable, precise information as to the neutron energy dependence of graphite damage.

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WATER PLANT DEVELOPMENT

In-Pile pH Test

The in-pile pH test continued to operate satisfactorily during the month. Build-up of film in four of the experimental tubes, presumably due to changes in plant coagulant feed, caused these tubes to limit pile power level from boiling considerations. For this reason, a supplement to the original production test was issued authorizing the use of the flow laboratory pump pressures as bases for the calculations of boiling limits for these tubes. This procedure removed the limitations on power level imposed by the experimental tubes. Discharge of one tube, with slugs exposed approximately 200 MWD/T, was made on the shutdown of October 30, 1952.

Flow Laboratory Tests

The flow laboratory mock-up tube tests, providing correlation with in-pile pH tests, continued to operate during the month. Facilities were installed to test the effects on front tube corrosion of the various types of water used in the in-pile pH tests. The initial results from the low pH test in 183-F indicate that corrosion rates in alum water are lower in low pH water. Preliminary results from coupon tests indicate that barnacle formation is more severe in water heated by means of the flow laboratory exchangers than in water heated through the coupon-containing apparatus; this information further confirms the superiority of jacketed tubes for corrosion test purposes. The first slug discharges were made from the dichromate tubes in the flow laboratory; however not enough data have been obtained to date to establish a trend. Further data from the ink facility corrosion test showed that the initial high corrosion rates are continuing and that a slight pitting attack is occurring. Preparations have been completed for an extended corrosion test of a "C" type horizontal rod. The test will commence approximately one week after fabrication of a steam jacket for the rod is completed.

Water Quality Evaluation Tests

Because of the large savings resulting from the use of the alum-activated silica water treatment process at the K Areas, a program has been initiated to evaluate the effects of alum water under various in-pile conditions. Essentially, the program consists of operating the piles according to the following plan:

	B	C	D	DR	F	H
Ferric Sulfate	X					X
Alum		X	X	X	X	
Sodium Dichromate		X	X	X		
Purging	X	X		X	X	X
Tube Distortion	Moderate	Nil	Severe	Negligible	Severe	Negligible

Production tests are being circulated for approval to make the necessary water quality changes. It is anticipated that the plan can be put into effect by December 1, 1952.

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Water Quality Tests at 100-F and 100-D

Operation of these tests continued to be satisfactory. The primary emphasis at present is to establish treating costs while producing water which will not produce film on the tubes under operating conditions. New lows for chemical costs have been established in the past two months using the alum-activated silica process. Operation using Panellit pressure monitoring to detect film formation has proved very successful. The use of this method is primarily responsible for the lower costs; since impurity limits are not critical using Panellit analyses, coagulant feed rates can be reduced to a more realistic level.

Installation of the equipment to obtain effluent alum water samples from five individual tubes has been completed. Samples are being taken about every two days for analysis in the radiochemical laboratory in 200-W. As yet no equilibrium values have been obtained.

Water Plant Studies

Tests and calculations have been completed to determine the maximum flows of each component part of the 100-H process water system with existing equipment. A study has been made to determine possible means of modifying the system to increase capacities.

100-K Flow Laboratory

Preliminary sketches have been prepared and work is proceeding on the general lay-out of the flow laboratory for K Pile. Requirements for steam, electric power, and raw and filtered water have been established and major equipment sizes calculated. The scope drawings are scheduled for completion by December 15, 1952.

Corrosion

A document that describes the pitted slugs and tubes that have been observed in the piles and in the flow laboratory has been written and is being published. A discussion of possible causes of the attack is given along with a program to study the attack and provide a solution for the problem. In line with this program a four tube mock-up of process tubes is being constructed at 190-H that will be used to test the effect of Ferrifloc water on the pitting attack. Short tube mock-ups, for installation at each pile area, are being constructed to study the effect of the various water treatments on the front tube problem. A two dimensional nozzle has been designed and is being constructed to study the effect of temperature, pressure, and velocity on cavitation. The 250-hour and 500-hour impingement tests, in which 90°C alum water with and without dichromate impinged on 72-S and Alclad samples at 42 fps, were completed. Only superficial attack took place in the dichromate water, whereas mild pitting occurred in the dichromate-free water with the exception of one 500-hour Alclad sample that was pitted more than 50 per cent through. Rotating disc tests with high velocity jets impinging on the discs have shown severe pitting attack. No interpretation of the data is yet possible. Mock-up tests and induction heater tests to evaluate the effect of dichromate, temperature, velocity, slug irregularities, and heated surfaces on the pitting attack are continuing. Various "standard" cocked slugs are being tested in the glass tube with the intention of

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visually observing cavitation. The most successful slug of this type is one with a ridge around its center over 270° of arc. Cavitation has been observed even in cold water on the downstream edge of this ridge. Preliminary results from the 50 tube mock-up and the weighed tube apparatus show that significantly fewer barnacles grow in water with dichromate than without. The effectiveness of routine purging to inhibit and remove barnacles is being determined, but no results are yet available. Inspection of the front tube sections of all the piles has shown a small number of barnacles at B, DR, and H Piles and large numbers at D and F Piles.

A second charge has been inserted in the test hole for the production test to determine the effect of radiation on corrosion. The samples from the first charge have "cooled" and are being weighed. The slugs anodized by the Corrosion group have been charged into a flow laboratory tube for removal after various exposures. The first data will be available during November. The tests of 63-S slugs and the nickel plated slug that were requested by Pile Fuels have been completed and reports are being written. A borescopic inspection of several tubes at C Pile showed no severe attack of the tubes as a result of flushing at low pH. However, water stains that were slightly roughened at the center were observed in the tubes.

Recirculation

The in-pile test of recirculating cooling water experienced screen plugging difficulties that turned out to be pieces of gravel that were caught on the cone screen. As a result the heavy metal was not charged on the last shutdown as planned. The system was thoroughly flushed and started again with a dummy charge. If there are no further signs of plugging during the present operating period, the tube will be charged at the next outage.

The new pump for the flow laboratory recirculation test has been installed. The fifth test, which was interrupted by the pump failure, will be started again immediately. The installation of the deionizers is almost complete, the final date now being November 15, 1952.

Film Studies

The water analyses records of Columbia River water and process water are again being studied to determine the existence of any correlation between the chemical constituents in the water and film formation in the piles. The electron microscope study of particles in the film is being continued to include a correlation with the colloidal particles in the river and process waters.

CORROSION STUDIES

Laboratory Conversion

Construction of the corrosion laboratories in the 108-B is at a standstill because of widespread mercury contamination from the terminated P-10 project. It is felt that this mercury contamination would invalidate corrosion data.

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Building 222-B, now unoccupied, is under consideration as new quarters for the Corrosion group. The laboratory space is adequate, and apparently very few architectural changes would be required. A radiological survey of the building is in progress, and estimates on utility requirements are being prepared.

Anodizing Program

Satisfactory progress is being made in removing the autoclave film from fuel slugs prior to anodizing. To date, the best method for removing the autoclave film from slugs appears to be by heating the slugs at 20 psig pressure in a solution containing five per cent phosphoric acid and two per cent chromic acid for 20 to 30 minutes. Weight loss determinations are in progress. It has been shown that Martin Hard Coat can be applied to eight-inch slugs from which the autoclave film has been removed.

Anodization of 200 full length process tubes by the standard Alumilite procedure is in progress at the Columbia Electric and Manufacturing Company in Spokane. A member of the Corrosion group and a representative of the Manufacturing Department were present to inspect the finished tubes during the first week of operation.

The aluminum-graphite block assemblies discussed in previous reports have been kept in operation in order to compare the stabilities of various types of anodic coatings.

Galvanic Couples

Galvanic couple measurements have been initiated in hot pile process water, using the LaQue cell to obtain high linear velocities at moderate volume flow rates. Galvanic EMF's, type of attack, and cavitation are being studied at different flow rates and temperatures.

The thermal EMF's between specimens of aluminum, one held at 70°C and another at a higher temperature, have been determined for several temperature differentials. The hot specimen is decidedly anodic to the 70° specimen, and maintains an appreciable thermogalvanic current. Apparatus will be designed to check these results with slug jackets simulating poor bonding and resultant high temperature differentials.

The effects of acidic and alkaline media on autoclave film are under investigation, using solutions likely to be effective in removing uranium accidently present upon slug jackets (e.g., from slugs rupturing during the autoclave test). It is hoped that a correlation can be established between film resistance measurements and corrosion resistance.

Front Tube Examination

A systematic inspection program of tubes is under way, the object being to attempt a correlation of barnacle-like growths in the front of the tube with cavitation, erosion, and other factors leading to slug ruptures and leaky tubes.

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IRRADIATED MATERIALS EXAMINATION

Slug Examination Facilities

Development and fabrication of a prototype model of the slug handling equipment for C basin has been started by the General Engineering Laboratory.

Conversion activities in the 105-B basin have been completed, and the facility is ready for the installation of equipment. Present plans call for this facility to be in operation early in December.

108-B Tube Examinations

Tube 3684-F, removed from the pile about August 8, 1952, contained a suspected rupture and a number of pitted slugs. The tube shows pitting attack in the film at a slug junction about 21 feet from the rear Van Stone flange. Severe pitting was present about ten feet from the rear Van Stone flange. In general, the inside of the tube was free of corrosion product; the downstream sections contained a dark red-brown film. Large quantities of white corrosion product were found in scratched areas on the tube exterior.

A hole was found in tube 1475-F, about ten feet from the rear Van Stone flange. One rib adjacent to the hole was severely pitted for several inches, and slight pitting was also evident downstream from the hole. Several sections of the tube showed a gray-black film, but the usual red-brown film was predominant. In some areas, three distinct layers of tan, red-brown, and brown film were visible. A series of deep, randomly-spaced circular pits, the first of their type noticed on any tubes inspected at the 108-B facility, were observed on the exterior of one section. These pits appear to have been caused by localized galvanic action and were about 15 to 20 mils deep.

While in the pile, tube 0867-F was determined to have a hole about 12 feet from the rear Van Stone. Examination of two unmarked sections from this tube revealed internal pitting attack at two consecutive slug junctions, with a hole penetrating the top of the tube at one junction. The outside of the tube was clean and smooth.

Slug Examination

Slugs from all piles have been examined for "F-type" pitting attack; none has been found except on F Pile slugs. Blistered slugs with rippled surfaces have been found in all areas, but not in quantity except at H Pile.

Thirty-five thorium slugs from Production Test 105-516-A were visually examined. Approximately 50 per cent had discolored areas elongated lengthwise along the tops of the slugs. The discolored areas were interpreted as burned spots.

Slugs from tube 2764-B were air weighed for Production Test 105-9-P. Average weight loss was 2.76 grams or 0.076 mg/cm^2/day. Maximum weight loss, for the eleventh slug from the downstream end, was 4.48 grams or 0.123 mg/cm^2/day.

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PRESENT CANNING DEVELOPMENT

Lead-Dip Canning - Production Test 313-105-7-M

Approximately 4000 slugs machined from beta heat-treated rods were lead-dip canned under Production Test 313-105-7-M. Some difficulty was encountered in the temperature control of the duplex bath and of the canning baths and a considerable number of Al-Si penetrations were observed. A high percentage of the initial group of about 2500 slugs will have to be rejected on suspicion of being penetration rejects.

Smooth Fernald Machined Slugs - Production Test 313-105-11-M

Production Test 313-105-11-M, "An Evaluation of the Smooth-Type Fernald Slugs", has been issued as document HW-25623. All bare slugs have been inspected and a document is being prepared to record results of the bare slug inspection.

Sleeveless Canned Slugs

A test to evaluate the necessity for internal can wiping before slug insertion was unsatisfactory because both wiped and unwiped cans wet equally well, and no conclusion as to the value of the wiping could be drawn.

Production Test 313-105-15-M has been written for the fabrication and irradiation of 1200 four-inch triple-dipped sleeveless canned slugs. It is being circulated for approvals.

C Slugs

Approximately 550 satisfactory C slugs have been fabricated. Welding difficulties due to entrapped air beneath the top cap have continued, but the technique of using a cap with a small hole in the center that is welded closed after the circumferential weld closure is made may be satisfactory.

The possibility for trichlorethylene corrosion of the C alloy has been eliminated from the fabrication process by substitution of a methanol or acetone wipe for trichlorethylene cleaning prior to welding.

Interlocking Slugs

Two drawings of the tentative design for eight-inch true-line cans and well-type caps were completed. Drawing H-3-8020, featuring the truncated cone interlock, was submitted to Alcoa for ease of fabrication approval and was considered satisfactory except for minor modifications. The Metal Preparation Section is ordering 55,000 cans and caps according to this drawing for experimental and production test canning.

Pre-Wet Caps

A 300 Area production test for the use of pre-wet caps is being written. As no vendors appear to be interested in supplying pre-wet caps, the necessary equipment for their fabrication is being designed.

Filler Weld Adoption

Work on the filler weld was directed along three main channels. First, the adoption of a particular surface cut in the slug; second, fabrication of a durable assembly to hold the feed wire components; and third, the drawing of 47 mil wire to 40 mils.

A modified step cut was chosen for the standard cut to be used in filler weld work. The cut is approximately 70 mils in from the can wall edge and 70 mils deep. Instead of a 90° step cut, a 70° cut was employed to prevent the filler wire from dropping off the edge of the step.

An assembly was fabricated out of one-fourth inch 61S aluminum sheet to hold the wire feed mechanism and wire guide tube. The unit was mounted on the torch side and contained necessary adjustment screws for proper positioning of the wire guide tube.

Efforts are being made to obtain adequate materials to perform the wire drawing as 40 mil wire is virtually unobtainable from outside vendors.

Compound Layer Investigation

1. Bronze Bath Investigation

   The slugs have been canned to investigate the effect of bronze composition and temperature on the formation of compound layers between the uranium and the aluminum-silicon bond. The slugs are being prepared for metallographic inspection.

2. Compound Layer Identification

   Difficulty has been encountered in the preparation of a satisfactory sample for X-ray diffraction. Further work is continuing on this problem.

Lead-Dip Canning with Eutectic 190 Flux

The results of air sampling for toxic fumes by the Radiological Sciences Department were received late in the month. It was found that the amounts of the toxic fluorine compounds from the flux were within safe exposure limits for the eight-hour working day. Excessive lead concentrations were found, however, during bailing of the duplex bath - a condition that probably exists in the conventional lead-dip operation. Since this condition is present only when bailing out a lead pot, it will not seriously interfere with operations.

Quality of Impact Extruded Caps

Further testing has indicated that blistering can take place at the time and temperature of the cap cycle in the canning process. Work is continuing towards estimating the possible effect on canned slug quality.

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Autoclave Testing of Thorium Slugs

Ten canned thorium pieces with incomplete weld closures were subjected to the normal 40-hour autoclave test, at the request of the Pile Engineering Sub-Unit, to see if failure could be induced. All ten pieces were complete failures.

Autoclave Failures

During October there were one four-inch failure (cap type) and two eight-inch failures (both apparently side failures).

Transformation Safety Factor - Triple-Dip Process

A check on the safety factor for the triple-dip process at the present established minimum temperature of

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MECHANIZED CANNING

Despite additional delays, the installation of Development Line facilities in Building 314 is now approaching completion. The two 60 KW resistance furnaces were put into operating condition and tried out. A representative from Ajax arrived October 21, 1952, to supervise the installation of the refractory linings in the two 35 KW low frequency induction furnaces. It is anticipated that this job will be completed and the furnaces tried out by November 8. Air and water lines and electrical outlets were installed to permit operation of the mechanized units on the Development Line furnaces.

The mechanical units were moved from their temporary location on wooden mock-up furnaces and were relocated on the resistance furnaces to permit accurate alignment of interacting mechanisms. Although the working space surrounding these furnaces has been crowded, good progress has been made toward getting the units arranged for co-ordinated action.

One of the most important immediate problems concerns the proper functioning of the can-sleeve preheat muffle furnace and feed mechanism. This apparatus had been tried out and adjusted to work satisfactorily when cold; but due to expansion and scaling of the sleeves and the track upon which they slide, it fails to function properly when hot. The mechanisms are now being modified in an effort to remedy the difficulty.

Continued experimentation with Al-Si resistant materials indicates greatest promise for steel coated with a mixture of R-20 insulating powder and "Sauereisen" thinner. Optimum proportions are yet to be determined. However, one sample has been cycled for four days into and out of a molten bath of Al-Si with no apparent detrimental effects. A sample, furnished by the Mechanical Development group of Process Engineering, of stainless steel electroplated .0002-inch thick with tungsten lasted four days in a quiescent bath.

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NON-DESTRUCTIVE TESTING

Autoclave Tests

A test which simulated the effect of a complete penetration was run in the water autoclave at 100 psi and about 170°C. The penetration was simulated by filing through the can wall until Al-Si was exposed, one slug failed by rupturing through the can wall at the point of the penetration after an exposure of 76 hours. The test is continuing with others.

Test for Beta Transformation in Bare or Canned Slugs

Document HW-26003, "Preliminary Report on Ultrasonic Properties of Uranium", by D. C. Worlton and E. C. Wood, was prepared for issuance early in November. This document describes the development work leading up to the application of ultrasonics to the measurement of degree of transformation. The resulting transformation test has so far been used to inspect 449 eight-inch alpha-canned salt-bath heat-treated slugs from the lots which were set aside previously for suspected lack of transformation. Of these, 292 were acceptable under the settings used, and 157 were rejected. Thirty-two of the acceptable pieces and 42 of the rejects were cut open and macroetched. Of these, none of the accepted pieces and only three of the rejects showed lack of transformation on macroetching. This is now no cause for concern, since the standards were set purposely high to insure no partial transformation in acceptable material. About 100 salt-bath heat-treated slugs transformed with a known time safety factor of over three, selected from standard production test material, were sent through the ultrasonic test equipment and all showed as completely transformed with no rejects.

METAL QUALITY

Uranium Rod Quality

In continuing the practice of close liaison between Hanford and National Lead technical personnel, initiated in June, a Hanford representative followed the start-up of rolling at Simonds Saw and Steel Company on October 27.

During the September 23 to October 3, 1952, rolling a sharp improvement in the surface quality of MCW billets was noted. This is considered to be a direct result of changes in the inspection procedure at MCW which were effective during this period. It was noted that some metal cast at Mallinckrodt exhibited hot checking in rolling. Since this hot checking is causing a loss of over a thousand pounds of metal per rolling, a program has been initiated to determine and eliminate the cause of this phenomenon. Hanford re-melt billets exhibited rough surfaces with a sharp protrusion at the trunk taper junction. This is believed to be the cause of end burning during rolling of Hanford billets. Elimination of this condition is desirable.

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Heat Treatment of Rods

From October 6 to October 14, 1952, at Fernard 65 tons of rolled uranium rods were beta heat-treated in a salt bath composed of Li_2CO_3 and K_2CO_3. Two rods were heat-treated simultaneously for 16 minutes at temperatures ranging from 709°C to 740°C. All rods heat-treated below 720°C as well as every sixth rod heat-treated within the specified range of 720°C - 740°C were macroetched and examined for transformation. All rods examined were completely transformed. On October 14, 1952, the salt pot developed a leak and the operation had to be discontinued. It was decided to rebuild the present facilities in order to complete the heat treatment of the desired 180 tons, of which 77 tons have been completed. Several modifications will be included in the rebuilt furnace to insure better utilization of the heat and closer control of the temperature. It is expected that the heat treatment of the remaining rods will be started as soon as is feasible.

Uranium Alloys

Investigation into the necessary heat treatment for both high (800 ppm) and low (30 ppm) carbon uranium-0.3 atomic per cent chromium alloy was continued. It was found that a single beta heat-treatment at 700°C $\pm$ 20°C followed by an isothermal quench at 500°C $\pm$ 25°C followed by cooling by any convenient means produced a fine grained, essentially randomly-oriented structure in the high carbon alloy. The same treatment, only with an isothermal quench at 500°C $\pm$ 10°C, produced comparable results in the low carbon alloy. The minimum grain size in the low carbon alloy occurs between 490°C - 515°C, whereas the minimum grain size in the high carbon alloy occurs between 475°C - 525°C.

63S Aluminum

To evaluate the effects of irradiation on 63S aluminum, a six month in-pile test of specimens has been initiated. Specimens in the following conditions will be tested: solution heat-treated; solution heat-treated and precipitation hardened; solution heat-treated, precipitation hardened and overaged for 100 hours. Non-irradiated control specimens in the same heat-treated conditions will be tested.

Zirconium as a Tube and Jacket Material

HW-25970, a report covering the preliminary evaluation of zirconium for use as process tube and jacket material has been completed. This report is a technical evaluation with the best available economic data appended.

It has been discovered that the salt-bath preheat used in preparing samples of zirconium sheet for corrosion tests has caused a large increase in nitrogen content of the zirconium. Since nitrogen in quantities this high (> 50 ppm) is detrimental to the corrosion resistance of zirconium, corrosion data obtained from these samples may not be representative.

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NEW CANNING PROCESSES

Warm Pressure Canning

Diffusion welding studies reveal that a roughly exponential relationship exists between bond thickness and temperature for a given time and pressure.

[redacted] Examination of hot pressed slugs, both water and air quenched, with an Al-Si bonding layer has revealed in several instances severe cracking of the compound layers between the uranium and the Al-Si. These results have been further confirmed by the Destructive Testing group's undercutting tests which disclosed that the slugs had very poor resistance to undercutting. Testing the porosity of the triple-dip coating on molded slugs by boiling water has resulted in failure after 79 hours of exposure. Welding of uranium and aluminum by the use of copper powder shows extensive diffusion between the aluminum and copper and between the copper particles themselves.

Sylvania Slugs

Nineteen hot pressed slugs, nine employing a nickel "sweater" and ten using aluminum oxide diffusion barrier have been received from Sylvania Electric Products Company for testing. These slugs have been tested in the 305 Pile with both types showing a reactivity gain. The increase in reactivity is at present believed to be due to an increase in diameter of the slugs and/or a higher uranium density and/or purity.

Canning Criteria

Jackets and sweater-jacket combinations using lead, zirconium, aluminum, zinc, copper, and nickel on uranium slugs are being tested in the 305 Pile to determine the reactivity effects of the different materials on several uranium diameters. Aluminum jacketed zirconium-, nobium- and chromium uranium alloys are also being tested in the 305 Pile. Hollow slug designs are being tested in the 305 Pile to investigate internal and external cooling methods, variable inside and outside diameter, and different jacket and cooling tube materials. Hollow slugs for C Pile start-up tests have been prepared and will be evaluated by the Pile Physics group. Similar slugs will be tested in the 305 Pile in an attempt to gain a correlation between 305 and 105 data.

In an effort to evaluate unbonded fuel elements 100 Al-Si coated slugs are to be cold canned, and are to be compared to bonded slugs by use of the non-destructive and destructive tests.

Coatings on Uranium

Arrangements have been made with Separations Technology to get 25 uranium pieces nickel coated by nickel carbonyl decomposition for experimental purposes.

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Vapor coating equipment is currently being fabricated and calibrated to supplement off-site endeavors and to have Hanford personnel trained in the various techniques involved. The methods of vapor coating to be investigated are: sputtering, evaporation, and halide decomposition. Several Al_2O_3 -SiO_2 -MgO refractories and alumina ceramics have been satisfactorily coated with aluminum in an evaporation unit.

Zirconium Wetting

Data and photomicrographs have been obtained following the numerous tests pertaining to the wetting of zirconium by Al-Si. The Al-Si layers were subjected to a 90° twist test to evaluate the adherence of the coatings. Surface treatment, temperature of Al-Si, method of dipping and time of dipping are the parameters involved.

Insulated End-Caps

Ceramic discs to be used as insulators in slug assemblies have been ordered. When these pieces are received they will be applied to different canning schemes and the slugs evaluated regarding reactivity, non-destructive and destructive testing.

INVENTIONS

All persons 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 the period covered by this report. 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.

Signed: G E McCullough Jr
G. E. McCullough
Manager, Pile Technology

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HW-26047

November 7, 1952

SEPARATIONS TECHNOLOGY UNIT

MONTHLY REPORT
OCTOBER, 1952

VISITORS AND TRIPS

G. W. Watt, Consultant from the University of Texas, Austin, Texas, visited here October 13 through 17, for research and development consultations.

W. Henson and O. J. Whittemore visited here October 15 from the Norton Company, Boston, Massachusetts, for refractory discussions.

M. Weech, from the American Cyanamide Company, Arco, Idaho, visited here October 15 and 16 to obtain information of Redox and material handling.

W. H. Lewis and R. H. Winget visited here from Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 20 through 31, for operations information on metal recovery processes.

R. J. Anicetti visited Battele Memorial Institute, Columbus, Ohio, October 28 and 29, to attend the A.E.C. Ceramics Conference.

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1197768

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Separations Technology Unit

M. H. Curtis visited Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 3 through 10, for Hot Laboratory and Equipment Information Meeting, K-25 consultation on UO_3 problems, and Purex Process information.

A. M. Platt visited Argonne National Laboratory, Chicago, Illinois, October 6 and 7, for technical consultation on Purex.

A. M. Platt and R. E. Tomlinson visited Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 1 through 4 for Purex Process consultation studies. They also visited Knolls Atomic Power Laboratory, Schenectady, New York, September 29 through October 1 for technical consultations on Purex.

A. E. Smith visited Dow Chemical Company, Rocky Flats Plant, Denver, Colorado, October 20 through November 1, for inspection consultations.

R. E. Tomlinson visited Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 9 and 10 for ORNL Purex Process consultations.

ORGANIZATION AND PERSONNEL

Personnel totals are as follow:

	September	October
Administrative	5	5
Chemical Research	43	42
Chemical Development	95	98
Process	43	43
Total	186	188

Chemical Research: One Technical Graduate - Rotational transferred to Design-Process Engineering Unit, one Technical Graduate - Rotational transferred from Technical-Applied Research Unit, and one Secretary "B" went on Leave of Absence-Pregnancy.

Chemical Development: One Technical Graduate - Rotational transferred from Technical-Pile Technology Unit, one Technical Graduate - Rotational transferred from Management-General, one Technical Graduate - Rotational transferred from Manufacturing-Reactor, and one Technical Graduate was converted to Engineer Assistant.

$BiPO_4$ PLANT ASSISTANCE

Canyon and Waste Concentration Buildings

Production Test 221-T-16 - The effect of variation of a single variable in the extraction strike was studied with respect to temperature, strike time, digestion time, and centrifugation rate in nine runs. The limited results

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tabulated below indicate that decrease in temperature is unattractive but decreases of as much as 66 per cent in strike time and 50 per cent in digestion time are reasonable methods for decreasing the time cycle; likewise, increasing the centrifugation rate by 30 per cent seems to have a like effect on waste losses.

Isolation Building

Use of Filter Sticks - The 65 micron filter on the end of the decant line, P-1 Tank, Cell 4, was replaced with a 20 micron filter on October 10, 1952. The average per cent loss to the recycle for the first five runs has been 5.0 per cent using the 20 micron filter, compared to 9.9 per cent with the 65 micron filter. On the average, a decrease of about 30 minutes in the time cycle may be expected. This would make the P-1 time about 5.0 hours.

The lanthanum content of dissolved first cycle product derived from filter stick operation varies from 2×10^4 to 10^5 parts per million parts of plutonium versus 6×10^5 to 8×10^5 for open ended decant line operation. On a straight dilution basis the lanthanum content of the filtered material should be 1×10^4 to 2×10^5 parts per million. The two-fold difference may result from the low solubility of lanthanum sulfate. A lanthanum content of 1 to 5×10^3 parts per million is considered necessary before the second peroxide cycle can be eliminated.

Recovery of Plutonium From Filter Boat Station Cleanouts - Additional recovery of plutonium from potassium permanganate-nitric acid filter boat station cleanout solutions has been successful. The most recent runs included a peroxide first cycle and an oxalate second cycle. Losses to recycle have been less than 10 per cent.

PURIFICATION AND FABRICATION BUILDING PROCESS ASSISTANCE

RG Line

There were no changes or modifications in RG Line technology during the month. The production in Task II dropped to approximately 30 per cent of building production and a yield of 95.6 per cent. The purity of cast metal over the last three months reflects a general improvement with the exception of iron which has risen for as yet undetermined reasons.

RM Line

Task II (Dry Chemistry) - The percentages of batches requiring rehydrofluorinations during the month of October was 16.3, compared to approximately 35 per cent for the months of August and September. The factor responsible for

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most of the process improvement shown was the ability to maintain a lower pressure differential between the hood in the furnaces which reduced the amount of air leaking into the furnace around the furnace doors during the hydrofluorination part of the dry chemistry cycles. Pressure differential control was attained by the addition of motorized valves in the aspirator water supply lines providing for closer control over the evacuation capacity of the aspirators. The fact that the condition of the hydrofluorinating equipment has a pronounced influence on the satisfactory application of the prescribed Task II process is exemplified by the following table:

Station Number	Number of Runs	Number of Rehydrofluorinations	Per Cent of Runs Rehydrofluorinated
2	18	1	5.5
3	23	2	8.7
4	14	3	21.4
5	6	4	66.7
6	13	2	15.4
7	6	2	33.3
Totals	80	30	Aug. 16.3

New and improved aspirators are now in service in Stations 4, 5, and 7. The water consumption of the new aspirator is approximately one-half gallon per minute compared to several gallons per minute for the aspirators these are replacing.

Runs RMX-12-10-47 and RMX-12-10-83 were processed during the month of October by bringing the processes gases in at the bottom of the boat and allowing the gas to pass up through the centric discs through the powder and out to the aspirators. This was done to insure that the correct ratios of oxygen and hydrogen fluoride were in contact with the powder during the dry chemistry cycle. Gas flows were reduced to a point at which the linear velocity of the gas through the powder bed, assuming uniform flow of the gases through the centric discs, would not have carried powder out of the boat into the furnace. Sufficient channeling, however, of the process gases did occur to lift powder out of the boat in both runs and deposit the powder on the walls of the furnace. Procedures by which a uniform flow of the gas through the sintered discs could be assured are not evident and this approach to the Task II problem of controlling the gas ratios contacting the powder has been discontinued.

Task III (Reduction) - Approximately 70 per cent of the month's production was processed in the RM Line reduction equipment. The average reduction yields

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for the month of October was 92.9 per cent. Yields on nine of the runs were less than 75 per cent and on eleven of the runs were over 100 per cent. This wide spread in yields is contributed to appreciably by the amount of powder hold-up in the powder transfer equipment between the boat dumping station and the crucible. It is expected that this hold-up will be eliminated when the new mixing equipment is installed during the month of November.

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RM Line Equipment Modifications

Fabrication of the new Task III mixer, auxiliary equipment and hood is scheduled for completion during the first week of November. At month's end,

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the over-all fabrication work was estimated to be 80 to 85 per cent complete. Final assembly and testing should begin during the first week of November, and it is estimated that two weeks will be required for this phase of the program.

Mock-up of the revised Task III conveyor which will permit parallel operation of the furnaces is in process of assembly. Detailed drawings are being prepared for the redesigned conveyor.

A scope report, "Remote Gaging in the RM Line", HW-25984, has been written and distributed. This report covers the review of the practicability of performing in-line gaging remotely. Numerous types of gaging instruments were reviewed and their applicability analyzed. The recommended instrument was fundamentally the same as the gage currently used except for suggested modifications necessary to enable remote operation.

The tool proposed last month for installing the heating elements into Task IV furnaces was fabricated and tested. Element replacement, which previously had required approximately eight man hours, can now be done in about one man hour.

Miscellaneous

Production Test 235-8 - "Revision of Procedures For Argon Purging - Task III" was started during the month of October. At month's end, three runs had been completed in accordance with this production test with very satisfactory results. Some difficulty has been encountered in obtaining a leak-tight system but the difficulties have been found to be in the valves rather than in the gasket and furnace seals.

Production Test 235-7 - "Reduction In Coating Time Cycle" is now 46 per cent complete. The rejection rate of coated pieces on which the air in the bell jar was replaced by purging with argon is about four times that for pieces processed after high vacuum treatment. None of the rejections, however, are attributable to the procedure for replacing air from the bell jar; consequently, the nitrogen purge procedure at this time appears to be a satisfactory procedure and the production test will be continued.

Skull Dissolver

A second "cold" operability test was carried out in the skull dissolution equipment after completion of modifications recommended after the September operability test. Equipment performance was satisfactory, and a series of five "cold" runs are now in progress to test the operability of the equipment before skull material is charged to the dissolver.

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1197773

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REDOX PLANT ASSISTANCE

Plant Performance

The Redox Plant operated at a 65.4 per cent time efficiency (IAF basis) and averaged 3.56 tons of uranium per operating day during the month. Approximately 11 days of down time during the first 18 days of the period were required for : (a) decontamination and replacement of the 3D Column with a new dual scrub 3D Column; (b) replacement of the Waste Concentrator (D-12) pot; and (c) replacement of the IA Column feed solution jumper and associated instrumentation. The following is an over-all summary of plant production performance:

	Approximate
Tons Uranium Shipped	71.9
Plutonium Processed (batch equivalents)	109.4
Per Cent Uranium to Waste	1.7
Per Cent Plutonium to Waste	1.1

Operating Performance

Flooding of the IA Column has occurred frequently during the month at nominal rates of 3.75 to 4.25 tons/day. It has been partially caused by erratic flow control, and is also believed associated with the presence of uncentrifuged solids in the IAF. The IA Column was given a 3 per cent HF-20 per cent HNO_3 acid flush on October 17. Following this flush, IA was operable at nominal rates of 4.0 to 4.25 tons/day until the gradual accumulation of solids again caused flooding.

Activity released to the atmosphere through the ventilation stack averaged approximately 2 curies of I^{131} per day and 0.05 curie of Ru per day. Fission-product activity was detected in the retention basin water during the month; measurements of the activity of dry sand at the periphery of the swamp were as high as 2200 mrep/hr and 80 mr/hr. The source of the activity was found to be a leaky coil in the Waste Concentrator (D-12) pot.

Equipment Changes

The 3D Column (packed with 3/4 inch Raschig rings) was replaced on October 3 with a dual scrub 3D Column (packed with 1 inch Rashcig rings). The old 3D Column has been repacked with 1 inch Raschig rings for installation in the 2D Column position. The 3/4 inch Raschig rings removed from the 3D Column show no evidence of corrosion.

The Waste Concentrator (D-12) pot was replaced on October 10 due to a coil leak. Replacement for the D-12 spare pot is to be a 9 (vice 7) foot pot having increased coil area and the same nozzle orientation.

1197774

DECLASSIFIED

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Process Performance

The following table summarizes decontamination and waste losses by solvent-extraction cycle for a representative period in October:

Period covering 10/18/52 through 10/24/52; nominal production rate of 4.25 tons/day, processing 90-day "cooled" metal:

	Gamma dF's		% to Waste	
Cycle	U	Pu	U	Pu
1st	3.7	3.9	0.35	0.37
2nd U	2.1	---	0.12	0.10
3rd U	0.7	---	0.23	---
2nd Pu	---	2.0	---	0.03
3rd Pu	---	0.8	---	0.02
Total	6.5	6.7	0.70	0.52

Feed Preparation

The dissolvers were charged during the month with fourteen 4.95 ton charges of uranium, with an average pile exposure of 590 MWD/T. The average age of the 24 IAF batches prepared was 86 days.

Uranium Extraction and Decontamination

In general, nominal conditions of the ORNL June, 1949 (acid-deficient) Flowsheet (Document HW-22834) were employed for the First Extraction Cycle and the Second Uranium Cycle. The Third Uranium Cycle is currently operating as a dual scrub column with the 3DS introduced at the 3DF inlet tee and 3DA introduced at the top of the column. The 3D dual scrub column flowsheet is summarized below (IAF = 1.0):

3DF:3DS:3DA:3DX:3EX = 1.0:1.2:0.5:5.0:1.8 with 3DS modified to 2.2M ANN, neutral, no FeII and 3DA of 0.04M HNO_3.

The 3D Column operating on this flowsheet has produced Redox recovered uranium with the sum of Na plus Ca reported as low as approximately 20 parts per million parts of uranium. Approximately 30 tons of purified uranium product are segregated for processing through 224-U Building after the UO_3 Plant is cleared of the contaminated RCU from current processing.

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1197775

Separations Technology Unit

Plutonium Extraction and Decontamination

Nominal conditions (except flow ratios) of the HW#4 Flowsheet were maintained for the Plutonium Cycle operation during the month. The current operating flowsheet ratios are summarized below (IAF = 1.0):

2AF:2AS:2AX:2BX = 0.32:0.60:0.66:0.12
3AF:3AS:3AX:3BX = 0.30:0.60:0.58:0.12

Rotating Equipment

No agitator or pump failures were reported during the month.

Process Chemistry

Metallic Contaminants in Uranium Product - The investigation of 3DU samples was continued from last month, and was extended to include the new dual scrub 3D Column operation. The results indicate that aqueous phase entrainment does occur in the 3DU to the extent of approximately 0.01 volume per cent. The elimination of this entrained aqueous has little or no effect on the Na in the 3DU which remains fairly constant at 20 to 200 parts per million parts of U, but does reduce Al from about 500 to about 50 parts per million, and Fe from about 200 to 20 parts per million.

In spite of the entrainment and the relatively high values of impurities in 3DU, the 3EU (E-12) product at the end of the month was very nearly within specifications, having a combined total of 50 to 100 parts of Na, Ca, Al, and Fe per million parts of uranium.

URANIUM RECOVERY PLANT ASSISTANCE

221-U Plant - TBP Extraction

During the report period, eighteen solvent extraction studies and one waste recovery run were carried out in plant equipment. Operating variables included RA pulse frequencies from 30 to 70 cycles/min, and production rates from 2.5 to 5 tons of uranium per day. At the close of the report period, RA Column design and operating information from "cold" plant and semiworks solvent extraction studies was incorporated in the final assembly of "A" and "B" Line RA Columns. During the final checkout of the RA Columns, preparatory to the introduction of "hot" feeds, waste losses of less than 2 per cent of the feed uranium were sustained for over 48 hours in each line at 2.5 tons of U/day, RA pulse frequency of 50 cycles/min, 1.28 inch pulse amplitude, and employing synthetic TBP-HW#4 Flowsheet feeds with RAX rate at 115 per cent of flowsheet. Highlights of new information obtained

1197776

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during the report period, under the test conditions employed are presented below:

1. Enlargement of scrub section diameters (from 20 inches to 26 and 30 inches in "B" and "A" Lines, respectively), to give a larger cross section, with lower pulse amplitude frequency products, permits more stable operation and steady control.

2. Optimum demonstrated uranium processing rates (waste loss basis only) are 2.5 to 3.5 tons U/day. It is expected that at least 3.5 tons/day and possibly higher rates may be realized in both lines subject to decontamination performance.

3. Division of the 20 inch diameter RA extraction sections into four equal area vertical sectors minimizes phase channeling experienced when an undivided extraction section is employed.

The above new information, when combined with other plant and laboratory data lead to the following planned initial "hot" operating conditions:

Production Rate:	2.5 to 3.5 tons U/day
Pulse Frequencies, cyc/min:	RA = 50; RC = 75
Flowsheet:	TBP HW#4, 115 per cent RAX
Solvent Treatment:	5 per cent Na_2CO_3 wash on the basis of dilute RC E_a^o (organic/aqueous uranium distribution ratio) ≥ 0.05. Water wash to follow carbonate wash.

Process Chemistry

Non-Radioactive Contamination in the Uranium Product - A series of RAU and RCU samples was obtained during the TBP Plant "cold" runs in both "A" and "B" Line columns. The analytical results indicate that Na was high (100 to 200 parts per million) and P was several hundred parts per million. The latter, however, may be controlled by the steam stripping operation to remove TBP from RCU.

Two series of samples taken across the 224-U Building (UO_3 indicate that significant quantities of Fe, Cr, and Ni, are picked up during the concentration steps, and some during the calcining and milling steps, with these alone making it impossible to meet the new purity specifications.

224-U Plant - UO_3 Conversion

During the period September 25 to October 25, 1952, a total of 260,272 pounds of UO_3 were produced in 710 calcination charges (average 367

DECLASSIFIED

1197777

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pounds per charge). The uranium was of current Redox production with 41.2 per cent reprocessed through the TBP uranium recovery plant in "cold run" testing. Subsequent to the production report period, an additional 19,320 pounds of UO_3 in 76 calcination charges were processed by November 5, 1952, to complete the inventory of uranium used in the Uranium Recovery Plant testing.

Calcining pot charges varied from 240 pounds to 500 pounds of uranium. Slight foaming (approximately 2 inches of foam) occurred during calcination of steam stripped and concentrated RCU from the 221-U Building (TBP) test runs. In general, UO_3 produced did not meet specifications for shipment to K-25 and was shipped to the Harshaw Chemical Company for further purification. A sample of powder from a pot produced from Redox UNH produced with the dual scrub 3D column resulted in the following analysis. Analyses of the lot samples have not been completed.

Analysis	Redox UO_3
Na	10 ppm
P	50 ppm
Fe	20 ppm
Al	20 ppm
Ni	<5 ppm
S	<100 ppm
Mo	<5 ppm
Cr	<5 ppm
Si	16 ppm
B	< 0.1 ppm

Typical values showed Fe increasing several hundred parts per million, Ni increasing 100 parts per million, and Cr increasing 20 parts per million.

Steam stripper operation was satisfactory during the period. Entrainment of uranium in the overhead vapor ranged up to 500 pounds of uranium per day depending upon the stripper steam rate. A steam rate of 7500 to 10,000 pounds of steam per hour gave satisfactory TBP removal and an entrainment loss of about 160 pounds of U per day.

During the latter part of the month, erratic behavior of E-D-2 (Final UNH Concentrator) was traced to attempted over concentration resulting from instrument recalibration. Operation of the concentrator with an indicated over head temperature of 120° to 123° C. resulted in good operation.

DECLASSIFIED [redacted]

1197778

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Waste Tank Farm Operation

The first cascade in C farm was recirculated and was completed on 9/29/52. Sluicing was started 10/13/52. The soft mud came up very easily. Rates as high as 500 pounds of solid removed per hour were achieved at first; this rate, however, fell off quickly as soon as "hard pan" was hit. Blending has been started at C farm.

From 9/25/52 through 10/9/52, sluicing was in operation from 101-U to 103-U, except for intermittent stoppages for fog dispersal and minor equipment repairs.

Because of the large quantities of water necessary for dispersal of fog by the water spray method, another method was tried. The new method was a steam blow followed by an air blow into the tank. This method is not as efficient or as rapid as the water spray but clarity sufficient for observation has been obtained without any significant increase in process volume. A stock of CO_2 is on hand for a fog dispersal test. This test is tentatively scheduled for next month.

UO_3 Reactivity

Ten reactivity runs were completed during the month. The following results were obtained on plant UO_3 lots:

REACTIVITY OF RECENT PRODUCTION LOTS OF UO_3

Lot	Origin	Per Cent UF_4	Conversion Ratio
118	Redox	70.4	0.912
126	TBP	82.2	0.979
131	TBP	74.2	0.982
132	TBP and Redox	78.1	1.03
134	TBP and Redox	68.5	0.907
139	Redox (TBP trace)	79.3	1.03
140	TBP and Redox	80.8	1.06

A reactivity run comparing lumps and powder taken from Pot 8 on 9/25/52 showed no significant difference in the reactivity of the two samples. A reactivity run on two samples prepared by laboratory calcination of two Harshaw UNH concentrate samples gave the following results:

Sample	Per Cent UF_4	Conversion Ratio
RD-1-201-5	97.9	1.28
RD-1-201-6	95.1	1.25

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1197779

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SEPARATIONS PROCESS DEVELOPMENT

Process Studies

Purex Flowsheet - Purex discussions were held with du Pont at Wilmington, Delaware (September 25 and 26), Knolls Atomic Power Laboratory (September 29 and 30), Oak Ridge National Laboratory (October 1 through 4), and Argonne National Laboratory (October 6 and 7) to assure that the latest information is incorporated in the design of the Hanford Purex plant. These discussions revealed that the Purex Chemical Flowsheet HW#1 is on a firm basis for design. Some further development work is desirable to work out optimum procedures for solvent regeneration, and possibly for the control of ruthenium volitilization during the acid recovery operations.

On October 10, Hanford was represented at a meeting in Oak Ridge National Laboratory to discuss the necessity and feasibility of extending the Purex pilot-plant investigations at Oak Ridge National Laboratory. This meeting was called by the Production Division of the Atomic Energy Commission, and resulted in an agreement to extend the Oak Ridge National Laboratory pilot-plant Purex program no longer than February 1, 1953. The minutes of this meeting are reported in HW-25971, by R. E. Tomlinson.

As a result of the above discussions, the Purex Chemical Flowsheet was revised to include a clarification step in the solvent regeneration procedure, and the tanks containing solvent used in the first extraction cycles were stipulated to be remote maintenance tanks. On the basis of recent Oak Ridge National Laboratory pilot-plant data showing definite but as yet quantitatively [redacted]

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Separations Technology Unit

The salient finding of the month was the tracing of the previously unexplained malfunction of the RA Column to emulsion-induced instability upon prolonged operation at otherwise satisfactory conditions.

In the glass pulse column, with a 3 inch diameter, 12 foot high extraction and 4 inch diameter, 6 foot high scrub section, this instability was found to occur in two distinct forms.

One form of instability originated in the scrub section. A tight organic in aqueous emulsion, resembling shad roe, built up under the interface, eventually filling the entire scrub plate section. When this shad roe-like emulsion reached the feed point, it obstructed the rise of the organic phase from the extraction section sufficiently to cause first a cyclic local flood and eventually a complete flood.

The instability originating in the scrub section was found to be remediable by providing (a) an increased interface area and (b) an increased distance between the interface and the top scrub plate. Omission of ferrous ammonium sulfate and sulfamic acid from the scrub stream may promote the development of this type of instability.

In its other form, the instability originated in the middle of the extraction section. In its mildest degree, this instability consisted in a periodic gradual tightening of the emulsion (decrease in dispersed phase droplet size and droplet to droplet distance) half way up the extraction section and then breaking of this emulsion by coalescence of the fine droplets into globs (ranging typically from 1/4 inch to 2 inches in diameter). In the more pronounced degrees of this form of instability, the tight emulsion caused a cyclic local flood (with complete periodic phase inversion over the middle portion of the extraction section), and sometimes eventually even a complete flood.

The conditions for the development of extraction section instability are similar in the 20 inch diameter UR Plant RA Column and the 3 inch pilot plant column. However, the instability in the plant column appears to take the form of gross channeling under conditions leading to flooding in the 3 inch column. (A 3 inch diameter glob of organic phase is sufficient to fill the entire cross section of the 3 inch column and thus cause a local flood, while in the 20 inch plant column a glob of the same size has ample room to channel up past the downward-moving aqueous phase.) In both cases, moderate or pronounced instability is accompanied by a marked increase in uranium losses.

Continuous UO_3 Conversion Development

Screw Calciner - Work on the design of a pilot plant screw calciner for installation in Building 321 was continued.

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1197781

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Fluidized Bed - A number of laboratory bench scale experiments were carried out, for the purpose of making qualitative observations that would aid in designing pilot plant scale experimental equipment. In a series of these experiments, aluminum nitrate solution (used as a stand-in for uranyl nitrate solution) was calcined in a bed of aluminum oxide. In one other experiment, a 3.5 x 3.5 inch bed of UO_3 was successfully fluidized with the aid of horizontal vibrations.

Mechanical Development

Pump Development - The 5 h.p. G. E. General Engineering and Consulting Laboratory submerged motor pump (graphitar sleeve bearings, stainless steel journals), has been installed in a test stand as an in line pump, pumping Purex 2EU solution. Operation has continued for 360 hours. This pump has operated, both submerged and in line for a total of 1900 hours. After 98 hours of operation as an in line pump pumping 2EU, bearing and journal wear were insignificant.

A nominal 3 inch diameter Teflon bellows (U. S. Gasket Company) with a 4 inch face to face dimension has operated for a total of 1.4×10^7 cycles pulsing water and Purex 2A Column solutions at an average frequency of 100 cycles/min. and a bellows travel of 1.5 inches. A second 3 inch diameter bellows has operated for a total of 6.3×10^6 cycles pulsing water at 100 cycles/min. and a bellows travel of 1/2 inch. There has been no evidence of failure or fatigue in either bellows.

Two 10 inch diameter Teflon bellows have been installed to pulse the solutions in the 16 inch column. These bellows have operated a total of 605,000 cycles, with no indication of failure.

A 6 inch diameter, 6 inch face to face dimension Teflon bellows was installed as the pulse generator for the 8 inch column. This bellows was operated at frequencies from 32 to 65 cycles/min., at a stroke of 1.75 inch, for 55 hours (176,940 cycles), when the bellows ruptured. The top convolution of the bellows separated at the outer edge. Two probable causes of failure are: (1) the pressure (not measured) in the bellows may have been excessive because of the large displacement (60 cubic inches) being pulsed through a short section of pipe in the pulse leg, and (2) the cross section of the convolution where rupture occurred was thin in comparison to the lower part of the convolution. The replacement 6 inch diameter bellows has a 4 inch face to face dimension. This bellows has operated for 200,000 cycles at a stroke of 0.89 inch, with no indication of failure.

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1197782

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Instrument Development

Pulse Shape Analysis - A sensitive pressure gage capable of following rapidly changing pressures, such as those generated in a pulse column, was fabricated utilizing a strain gage as the detecting device. The pressure wave recorded by this instrument was a modified sine wave similar to the theoretical pressure wave resulting from the summation of acceleration pressure and friction loss. Two pips were indicated on the pressure wave 90° from the points of maximum and minimum pressures. It is probable that these pips were caused by backlash in the mechanical drive system. There was no indication of cavitation or unusual pulse wave forms in either the 3 inch or the 16 inch pulse column during normal operation.

Purex Solvent Treatment - In an effort to determine optimum conditions for the removal of fission products from the Purex solvent, simulated batches of ICW were prepared by contacting Redox Plant dissolver solution (H-7) with Purex IAX and then water stripping to remove uranium. Decontamination of this solvent was then determined as a function of (1) washing agent, (2) contact time, (3) temperature, and (4) degree of agitation. From the results, the following conclusions may be drawn:

1. The extraction characteristics of the fission products vary widely as a function of solvent history. This effect makes it difficult to determine quantitatively the effects of other variables.

2. The optimum holdup time appears to be on the order of 20 minutes.

3. Vigorous agitation is more effective than mild agitation.

4. The optimum temperature is approximately 45°C. (Above this temperature effervescence of the carbonate solution occurs).

5. Washing agents.

   a. NaOH is more effective than Na_2CO_3. However, the use of NaOH would require a pre-wash with H_2O to remove uranium.
   b. The optimum Na_2CO_3 concentration is about 2 per cent.
   c. Oxidizing agents in alkaline solution improve decontamination.

   Although MnO_4^- is probably more effective than H_2O_2, the former is undesirable because of the formation of MnO_2.

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1197783

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Hot Semiworks

The first "cold" run which was scheduled to start in the Hot Semiworks during the week of October 6, was postponed with the transfer of all of the operating personnel to the 321 Building on October 7, in connection with the uranium recovery process RA Column work (see above). "Cold" shakedown operation is expected to start by the first of December.

SEPARATIONS PROCESS RESEARCH

Uranium Recovery Process Studies

The effect of the number of scrubs on decontamination was tested under high acid conditions (6 M H^+, 0.15 M UNH). Feed for the batch countercurrent run was 100 day CMW. The RCU was within a factor of 12 of gamma specifications after two scrubs, within a factor of five after three scrubs, and within a factor of four after four scrubs. Decontamination was limited by ruthenium and niobium. From this result, wastes aged 200 days or longer could be processed under these conditions.

Organic waste from this run contained gamma activity up to ten times as much as the product RCU. The suspected source of this effect, radiation damage to the extractant, is under investigation.

Ferrous sulfamate and fluoride ion (0.2 M) were compared as partitioning agents for plutonium in the RA column. The decontamination factor from plutonium obtained with either agent was ca. 60 in the extraction stage and ca. 1.5 in the scrub stage.

Miniature Mixer Settler Uranium Recovery Studies

The studies reported previously on the effect of hydrogen peroxide pretreatment on decontamination in the RA contactor of the Metal Recovery Process have been extended to feed prepared from current metal waste. The improvement in gross beta and gamma decontamination was less than was observed with simulated two year old waste. A run with feed treated with H_2O_2 at 80°C. showed very little improvement, suggesting that the high temperature caused a rapid decomposition of the H_2O_2. Pretreatment at 50°C. resulted in a RAU product containing about 60 per cent of the gross beta and gamma activity and about one-half the ruthenium activity of a control. However, beta and gamma specifications were still exceeded by factors of 29 and 63, respectively. These studies are being extended to higher acidities, which allows use of more peroxide without precipitating uranium and also gives better decontamination than does the low acid flowsheet.

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DECLASSIFIED

1197784

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Purity of IIIDU

High distribution of sodium in the IIID column (E_a° = 0.02) prompted investigation of solvent histories as to their effect. Plant treated 0-2 hexone, laboratory purified hexone, and purified hexone plus one per cent non-volatile residue from distilled plant hexone, were tested. Sodium distributions were high in all cases (E_a° = 0.02), indicating the effect is not associated with hexone history.

Uranium-free hexone contacted with 2 M $NaNO_3$ resulted in an E_a° = 0.0004. Thus high sodium distributions are obtained when the hexone contains uranium.

Batch extractions tested the sodium distribution in the "triple threat column" (IIIDS added with IIIDF, scrubbing with water). After extraction, the sodium impurity was 1000 parts per million, and after scrubbing one time the sodium impurity was reduced to 200 parts per million, in approximate agreement with the E_a° = 0.02. Two additional scrub stages should bring the sodium impurity to specifications, in agreement with plant data.

Mini Demonstrations

The 1/2 inch dual Mini for plutonium and second cycle work has been outfitted and operated for ca. 120 hours. The second plutonium cycle of Purex with reflux was tested with ORNL IBP. The process was shown to be chemically sound. Low waste losses were obtained and the plutonium refluxed from 0.3 to ca. 60 g/l.

The Mini was modified for Recuplex testing. Flowsheet 8 (feed 0.3 g/l, product 30 g/l) was tested and shown to be operable with modification. A gradual buildup of scum was noted throughout the 40 hour run.

Production of UO_3 By Calcination of Uranyl Peroxide

The precipitation of uranyl peroxide was investigated as a means of reducing the concentrations of ionic impurities in the UO_3 produced by the Redox or Metal Recovery Processes. UO_4 was precipitated at room temperature from Redox plant E-12 solution (final uranium stream) by addition of hydrogen peroxide (with simultaneous addition of NH_4OH to neutralize the hydrogen ion produced thereby maintaining the pH at about 2.5). The precipitated peroxide was filtered, washed, dried, and then calcined to UO_3 by heating at 250 to 300°C.

This treatment reduced the sodium content by factors of 20 to 50 (from 1000 parts per million to 20 parts per million in one case) and aluminum by factors of 2 to 4. Some purification from iron was also obtained since the

1197785

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product contained only 10 parts per million, however, analysis on the starting material indicated only 18 parts per million. Most other impurities were below the limits of spectrographic detection. The reactivity of the UO_3 produced from UO_4 was quite good. Values of 1.25 and 1.27 were obtained for two samples as compared with values of about 0.9 for Redox produced UO_3 and 1.1 for Metal Recovery. The activity of a K-25 standard UO_3 is estimated to be about 1.3.

Some decontamination from fission products activity would also be expected; however, the activity of the E-12 solution (which met β and γ specifications) was too low to permit its demonstration.

Tail-End Decontamination By Adsorption of Mercapto Complexed Ruthenium On Silica Gel

Redox IIDF or IIIDF solutions were digested for several hours at ca. 50°C. with either BAL (2,3-dimercaptopropanol-1) or β-mercaptopropionic acid and then passed through a silica gel adsorption column. With BAL, beta and gamma decontamination factors of 10 to 60 and of 5 to 60, respectively, were obtained, and these showed an apparent tendency to fall off with passage of up to 400 bed volumes of solution. However, the decontamination did seem to be strongly dependent on flow rate, a flow in excess of 0.2 ml/min/ml bed giving much poorer adsorption. Also β-mercaptopropionic acid was found to be much inferior to BAL in this application.

Effect of TBP Concentrations on Dispersions

The effect of TBP concentration on the ease of dispersion in the Uranium Recovery system has been investigated over a concentration range of 5 per cent to 50 per cent TBP. The dispersion time drops rapidly as the TBP concentration is increased. Of particular significance is the change in dispersion time as equilibrium is approached. For 30 per cent TBP there is a negligible change in dispersion time up to 90 per cent of equilibrium while for 12 1/2 per cent TBP there is a 30 per cent decrease in time at the 90 per cent equilibrium level. At the 100 per cent point, there is a further rapid decrease for all concentrations of TBP. Greater freedom from cyclic instability is suggested by the higher TBP concentrations. TBP concentrations of 20 per cent show a definite improvement over 12 1/2 per cent.

Carbonate Hydrolysis of TBP

A study of the hydrolysis of TBP by an equal volume of 0.5 M Na_2CO_3 solution at 55°C. (analyses at 24 and 48 hours) showed the rate to be 7×10^{-4} per cent/hour. The rate was directly proportional to time.

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1197786

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Removal of Iodine from TBP-AMSCO Solvents

Further studies of the removal of iodine from TBP-AMSCO-125 solvent indicate the following:

A. Iodine (I_2) reacts with AMSCO-125 to form compounds from which the iodine is not readily removed by carbonate or caustic washes. The reaction involved is probably a saturation of olefins, small amounts of which are present in the AMSCO.

B. Iodine in some oxidation state higher than zero, formed when solvent containing I_2 is washed with carbonate, is complexed by TBP. A reducing wash will remove this iodine from the solvent.

C. AMSCO-125 diluent was treated with an excess of inert iodine (I_2) to saturate any olefins present in the AMSCO. Simulated IOF containing radioactive iodine was prepared using this diluent. Removal of active iodine by carbonate wash was slightly better than from IOF prepared using non-pretreated diluent. When the above IOF was contacted for 30 minutes with an equal volume of 1 M Na_2CO_3, 0.1 M Na_2SO_3 solution, 96 per cent of the active iodine was removed. This represents the best removal of active iodine from simulated IOF yet obtained.

Ruthenium Chemistry

Equilibrium in ruthenium (IV)-chloride ion systems is reached in two days at 64°C. Spectrophotometric evidence indicates that at 64°C. the ruthenium (IV)-chloride complexes are monomers.

The catalytic decomposition of hydrogen peroxide by ruthenium (IV)-perchlorate solutions proceeds differently in 5 M H_2O_2 solutions than in 0.1 M H_2O_2 solutions. In both cases, however, the decomposition of H_2O_2 is first order with respect to hydrogen peroxide concentration in H_2O_2.

234-5 PROCESS DEVELOPMENT

Plutonium (IV) Oxalate Precipitation

Rate of Oxalic Acid Addition - The results from six precipitations of plutonium (IV) oxalate from solutions with plutonium concentrations of 10 and 60 g/l have shown that if the slurry is chilled to 6-10°C. during the digestion period, no significant variation in plutonium waste loss results from variations in the time used for oxalic acid addition, over the range from 20 seconds

1197787

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to 20 minutes. Filtration times decreased hyperbolically with increasing oxalic acid addition times and indicated that on a laboratory scale, a 2 1/2 to 5 minute addition time at 25° C. might be expected to give the shortest over-all cycle.

It is believed that a proper combination of strike temperature, oxalic acid addition rate, and digestion conditions will permit a reduction in the current time requirements for the plutonium (IV) oxalate process, chiefly by shortening the oxalic acid addition time to considerably less than 90 minutes.

Separation of Plutonium from Lanthanum, Iron, and Nickel - Separation factors for iron and nickel in the precipitation of plutonium (IV) oxalate from solutions containing ten grams of plutonium per liter and 50,000 parts of impurity per million parts of plutonium were 140 and 100, respectively. Factors of 10, 2, and 1 were obtained for the purification of plutonium from lanthanum when the latter was present in concentrations of 10^6, 2×10^5, and 2×10^4 parts per million parts plutonium respectively. Since the P-1 cake solutions currently contain 2×10^4 to 10^5 parts per million lanthanum, even though filter sticks are in use for the removal of the supernatant, a second peroxide strike continues to be necessary for cleanup of lanthanum in the processing of B or T Plant product.

Filter Boat Cleanout Procedure - Laboratory studies have shown that the Isolation Building procedure for filter boat cleanout can be modified to give safe operation by substituting oxalic acid for the hydrogen peroxide formerly used, or by using only five to ten per cent as much hydrogen peroxide as was previously considered necessary.

The recently discontinued filter boat cleanout procedure consisted of:

1. Treatment with 300 ml. 60 per cent HNO_3 + 300 ml. 4 per cent $KMnO_4$ to dissolve Pu $(C_2O_4)_2$.
2. Three rinses of 400 ml. 60 per cent HNO_3 each.
3. Treatment with small portions of a mixture of 400 ml. 60 per cent HNO_3 + 200 ml. 50 per cent H_2O_2 - to dissolve any MnO_2.

This procedure was discontinued because any operating error omitting the nitric acid rinses of step (2) might result in a sudden evolution of up to 80 liters of oxygen.

Laboratory studies showed that a mixture of 800 ml. of 6 per cent HNO_3 and 10 ml. of 50 per cent H_2O_2 could be used for step (3) with greatly reduced hazard (gas evolution of 2.5 liters) or that a mixture of 500 ml. 1 M $H_2C_2O_4$ and 100 ml. 60 per cent HNO_3 could be used for step (3) with almost

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1197788

no hazard from the volume of gas evolved. Oxalic acid use would lengthen the cleanout procedure by about thirty minutes.

Drying of Plutonium (IV) Oxalate - In continued laboratory investigation of a suitable procedure for drying Pu(IV) oxalate prior to hydrofluorination, a batch of oxalate in a plant filter boat was dried satisfactorily by heating the surface of the filter cake with two 250 watt heat lamps while pulling air through the cake. It has been found that under certain conditions, not yet defined, an exothermic reaction may develop during the drying process and may produce enough heat to cause incandescence of the powder bed.

A plant filter boat containing Pu $(C_2O_4)_2$ was dried by pulling air through the oxalate for two hours and forty-five minutes with two 250 watt heat lamps mounted about 1 1/2 inches above the oxalate. During the drying, the cake changed in color from yellow-tan to salmon-pink and then appeared to char with a brown color moving rapidly across small areas of the bed accompanied by small spark-like glows at the corners of flakes. The brown material changed to an olive green powder over a ten to thirty minute period.

To further investigate the incandescence observed during the drying of the plant batch of plutonium (IV) oxalate described above, a 13 gram batch of plutonium as oxalate was collected in a sintered stainless steel filter and dried without air flow in a furnace at 300°C. The cake dried quite regularly for one hour and then its temperature rose quite rapidly from 190 to 375°C. No incandescence was noted.

Experimental Coating

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Crucible Shop

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1197789

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INVENTIONS

All persons 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 the period covered by this report 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.

INVENTOR	INVENTION
R. L. Moore W. W. Schulz R. A. Watts, Jr.	Decontamination of Redox and Purex Streams, as well as other plant solutions, from ruthenium activity by adsorption of ruthenium-organo sulfur complexes (such as those formed with 2,3 dimercaptopropanol-1) on adsorption columns (such as silica gel).
L. L. Burger W. E. Roake	The preparation of plutonium trifluoride, for reduction to metal by means of a solid phase - gas reaction between plutonium (IV) oxalate or plutonium (III) oxalate and Freon-type compounds such as dichloro-difluoro-methane (Freon-12), the dichloro-difluoro-methane also acting as a reducing agent when reacting with plutonium (IV) oxalate.

R. B. Richards

R. B. Richards, Manager
Separations Technology Unit

RBR:eb

November 11, 1952

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1197790

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November 10, 1952

APPLIED RESEARCH UNIT

October, 1952

VISITORS AND BUSINESS TRIPS

C. Mannal, KAPL, was at the Hanford Works October 6-7 discussing the KAPL assistance to Hanford program.

J. B. Marling, Jarrell-Ash Company, El Cerrito, Cal. was here October 9 servicing spectrographic equipment.

H. H. Strain, ANL, consulted on analytical and separations problems October 23.

C. G. Gieszel, Applied Research Laboratories Corporation, Glendale, Cal. was here October 27-28 for routine inspection of spectrographic equipment.

SECURITY INFORMATION

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1197791

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A. D. Aird and G. E. Martin, KAPL, spent October 27-28 inspecting and discussing new hot laboratory equipment.

H. E. Soisson, KAPL, was here October 28-31. He brought equipment from KAPL for a cross-section measurement.

L. Penberthy, Penberthy Instrument Company, Seattle, spent October 31 discussing the applications of lead glass.

J. W. Culvahouse spent October 6-7 at the Phillips Petroleum Company, Arco, Idaho delivering samples and discussing the carbon-12 irradiation.

A. C. Weyerts and R. G. Wheeler spent October 7-9 at Site X-10, ORNL, attending the Oak Ridge Information Meeting on hot laboratories and equipment.

L. D. Turner spent October 15-16 at the Phillips Petroleum Company, Arco, Idaho consulting on underwater viewing.

W. R. Smith, L. D. Turner and O. J. Wick attended the National Metals Congress held in Philadelphia on October 19-23.

G. M. Muller spent October 23-24 at KAPL attending a nuclear safety meeting.

W. R. Smith spent October 24 at the Arcrods Corporation, Sparrows Point, Md., October 27 at the Armco Steel Corporation, Baltimore, Md., October 28 at the G.E. Welding Research Laboratory, Fitchburg, Mass., October 29 at the Linde Air Products, Newark, N. J., October 30 at the Airco Development Laboratory, Murray Hill, N. J. and October 31 at the Battelle Memorial Institute, Columbus, Ohio consulting and inspecting welding facilities.

H. R. Schmidt spent October 27 at the University of Chicago, and October 28 at the Illinois Institute of Technology recruiting technical personnel. October 29-31 was spent at ANL discussing results of the Bluenose Project.

F. J. Leitz spent October 27-28 at the University of Delaware, Newark, and October 29-30 at Pennsylvania State College, State College, recruiting technical personnel

G. A. Last spent October 30-31 at ANL attending an AEC meeting to discuss uranium alloys.

ORGANIZATION AND PERSONNEL

Personnel totals as of October 31 were as follows:

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1197792

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	Exempt	Technical Graduates		Non-Exempt	Total
		Permanent	Rotational		
Physics Research	25		7	8	40
Metallurgy Research	30	1	8	31	70
Analytical Research	54		3	27	84
Administration	4	-	-	2	6
Total	113	1	18	68	200

Effective October 1, responsibility for operation of the 222-S Building and 234-5 Building analytical control laboratories was transferred to the Process Unit of the Separations Section. Since the personnel transferred comprised ca. 145 of ca. 190 persons of the former Analytical Service Sub-Unit, the latter was dissolved and the remaining 45 persons, associated with the 100 Area and 300 Area analytical service laboratories were added to the rolls of the Analytical Research Sub-Unit.

PHYSICS RESEARCH

Lattice Studies

Measurements of the buckling of the wet and dry 6 3/16 inch lattice have begun. Though no final results are available, a preliminary value of ($1.5 \times 10^{-6} cm^{-2}$) for the buckling of the dry lattice has been obtained. The multiplication factor of this lattice is thus very nearly unity.

A hollow slug type of lattice appears to have some advantages for new pile design. Accordingly, the possibility of making an early measurement of the buckling of such a lattice is being investigated. The chief delay in making this measurement results from the time taken to procure the rather large number of slugs involved. It is estimated that about six months would be required to measure the buckling of hollow slugs in presently laid-up lattices (6 3/16 and 7 1/2 inches) without interrupting the present program appreciably.

Work on the design and feasibility of a reactor for measuring lattice reactivity has continued. Preliminary design drawings are being prepared and estimates of time and costs are being made.

Further experiments have been done in attempting to find the reason for the disagreement between the diffusion length of graphite as measured in a standard pile and that measured in a 105 pile. Measurements of L were made in a standard pile with process tubes (to simulate conditions in a 105 pile) first by inserting the counter into the tubes as is done in 105 measurements and then by inserting the counter into the graphite between process tubes. The result in both cases is the same and is 53.5 cm. In 105 pile measurements, the reported value is 60 cm. Thus the cause for the disagreement remains unknown although these experiments have shown that it cannot be the effects of streaming along the process tubes.

1197793

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The diffusion of neutrons in a lattice of absorbing rods in an infinite diffusing medium with plane source is treated with small sink theory and found to be equivalent to the diffusion of neutrons in an infinite medium with partially absorbing planes insofar as the determination of the diffusion length is concerned. The blackness of the equivalent planes can be obtained by calculating the change in flux at an arbitrary point in the medium when a single row of rods is inserted between the source and the measuring point. If the source strength is not influenced by the insertion of the rods, the change in flux is $\Delta\varphi = -\frac{A}{2b}$ where A is the sink strength of a single rod and b is the distance between rods. Measurement of the change in flux thus permits determination of A.

Aluminum tubing of appropriate size for canning the two small slug sizes has been received. These small slugs are presently being canned.

Experimental Physics

Two C^{12} samples with associated flux monitors were charged into the Materials Testing Reactor at Arco, Idaho on October 7. Since the variation of flux from monitor to C^{12} sample is rather large, there are still some problems involved in determining the total sample exposure. The total relative exposures should be determinable by measuring the Zn^{65} activity induced in the aluminum sample can wall at the location of the various samples provided that the Zn impurity is uniformly distributed in the aluminum.

Equipment drawings for the xenon cross section measurement have been completed and turned over to Project Engineering. A study is being made of all the sources of error in this experiment to be used as a guide for acceptable precision in each operation. Results of the argon dilution experiments which are now complete will be issued in a report next month. A report is also being written on the work done on the iodine elimination problem.

The accurate alignment of the neutron spectrometer and its components is critical in eliminating angular errors and in detecting the correct part of the reflected neutron beam. This alignment has been carried out in detail during the past month. The position of the beam in space is found by means of a BF_3 detector mounted behind an 0.005 inch wide aluminum slit in a high boron content shield.

In the measurement of the plutonium fission cross section, foils of about 0.07 mg/cm^2 enriched in U^{235} and Pu^{239} will be used. These will be irradiated with a neutron beam containing about 10^4 neutrons per second. Calculations have been made to see if any of the various nuclear reactions produced will invalidate the counting of the fission fragment pulses. The results show that all interfering effects remain less than 0.1 per cent for reasonable times. Further, burn-up of 25 and 49 and build-up of high cross section isotopes are negligible.

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1197794

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Plant Physics Problems

Two group calculations are being carried out for the case of enrichment of H Pile with 25-Al slugs.

A production test is being prepared for the irradiation of a standard column of uranium using the Bluenose equipment for monitoring the energy output. This column will be used in the one slug dissolver program to determine the amounts of heavy isotopes produced in pile irradiation.

The β-ray spectra of Pm^{149} and Tl^{204} are under investigation. Several problems, concerning energies, decay schemes and branching ratios for isotopes of interest in waste handling, are being considered and preparations necessary for the work are being made.

METALLURGY RESEARCH

Fabrication of Uranium

The portion of the experimental rolling program pertaining to the collection of uranium specimens having certain pronounced textures was continued. A section of a rod from Lackawanna #8 Rolling was rolled to 85 per cent reduction at 250° C in order to obtain an extremely oriented specimen, viz., a very pronounced (020) texture in the rolling direction. After a substantial number of samples with varying textures have been obtained they will be pile tested in an effort to relate orientation to dimensional changes.

Previous data have indicated that uranium rod rolled under certain conditions is given a preferred orientation of a type which is retained even after a beta heat treatment. Orientation studies of experimentally rolled uranium, subsequently beta heat treated at different temperatures and times, confirmed that there exists a persistent orientation with the (100) poles in the rolling direction.

Uranium Bonding and Alloy Studies

The effect of warm pressing on the porosity of various electroplated coats for uranium was evaluated by heating both an "as-plated" and a warm pressed wafer to 300° C until the coat ruptured. Warm pressing did not appear to decrease the porosity of copper-chromium and nickel-chromium coats but there was an improvement in the case of nickel plated coats. The results also indicated that the nickel plated wafers were superior to the other specimens both "as-plated" and after warm pressing and that the warm pressing formed a good bond between the nickel and the uranium.

The program to investigate the effects of irradiation upon the structure and the corrosion resistance of uranium alloys was continued. Specimens of uranium - 6.8 atomic per cent niobium, uranium - 4.7 atomic per cent chromium, and uranium - 14 atomic per cent molybdenum alloys were heat treated in an effort to retain metastable beta and gamma phases of uranium at room temperature. The

1197795

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effects of the heat treatments are currently being evaluated by metallographic and X-ray techniques.

The chemical composition, grain size, and orientation texture existing in a series of uranium-chromium alloy rods were determined. Uniformity of composition indicated that good homogeneity was obtained in all rods, while the grain sizes in most cases averaged between 0.015 to 0.020 mm in diameter. The average pole densities in the rod direction of some of the crystallographic planes increased as the chromium content was increased.

Properties of Uranium

The mechanical testing of irradiated uranium is complicated by the problem of handling highly radioactive material. To simplify this problem a bend test on non-irradiated uranium was run to determine the feasibility of using such a test for irradiated material. The plastic properties, ultimate center-loads and midpoint deflections, for ten eight-inch slugs were consistent but the elastic properties, yield strength and moduli of elasticity, where non-reproducible due to the proportion of the specimens.

The suspected importance of inclusions in uranium has prompted an evaluation of the inclusion content of Hanford production rods. To facilitate these examinations, a standard inclusion chart showing varying amounts of inclusions was prepared from selected uranium samples. A metallographic comparison of a test specimen with the chart allows a rapid evaluation to be made of the inclusion content.

Hanford Structure Materials

Specimens of low carbon steel, which were exposed to Purex waste solutions to determine the effect of possible local "hot spots" in the storage tanks, were examined after 1000 hours of exposure. Corrosion rates were found to be very low for the specimens in both normal and concentrated solutions. Also, no excessive pitting was observed in the coupons, but a thin, tightly-adhering, black oxide coating was formed on the specimens placed in the concentrated waste solution with no such coating being formed on specimens exposed in the normal waste solution.

Investigation of the failure of two stainless steel valves connected to the sulfamic acid make-up tank in the uranium recovery process was continued. Metallographic examination of corroded portions of one of the pumps revealed the presence of a large amount of ferrite in the austenitic matrix and indicated that corrosion progressed through the ferrite pools.

An investigation to determine the effect of using unprotected carbon steel tools during the fabrication of stainless steel was started. Past specifications for the manufacture of stainless steel equipment have stipulated the use of protected tools, since any embedded carbon steel might impair the corrosion resistance of the stainless steel. Initial tests on type 304 ELC stainless steel which was forced in contact with carbon steel and iron particles and then exposed to boiling 65 per cent nitric acid indicated that there was no reduction of corrosion resistance.

1197796

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The stainless steel rods which are used to secure the plates of the RA column in A line of the TBP plant suffered excessive localized corrosion after only 48 hours of operation. The corresponding tie rods in B line suffered no attack although it operated approximately three times longer. In order to explain this corrosion an extensive laboratory investigation was begun. The major efforts were directed toward learning whether or not the total corrosion damage is attributable to galvanic effects arising within the column.

Samples of Rulon (a teflon-filled bearing material) were subjected to solutions of nitric acid and sodium hydroxide to determine its potential use as bearing material. Test data indicate that this material is suitable as bearing stock in such solutions.

Corrosion tests were run on types 316 and 347 stainless steels to determine their relative merits for parts of a proportioning pump to be used in the Redox plant. Preliminary results confirmed past experience in that the type 347 was far superior to type 316 stainless steel in resistance to corrosion by the strong oxidizing environment.

Metallurgy of Plutonium

Several nickel shells were electroformed on stainless steel mandrels. Difficulty in stripping the completed shell has led to an investigation of the parting media.

The latest plastic tube for removing "hot" metallographic specimens from hoods has evolved into a six tube bag. This type of bag requires removal only for every sixth specimen.

The thermal analysis hood was essentially completed. Preliminary runs were started with a brief investigation of the lead-tin system.

The pressures and temperatures actually encountered in the reduction operation were obtained from several charts of the reduction cycle. These data will be used to set the experimental limits on the stress rupture tests.

Maintenance forces continued modifying the laboratory facilities in preparation for "hot" work in the hoods. About five of the fifteen items were completed during the month. Shortage of materials and manpower will be a great handicap to completion by the scheduled date.

Radiometallurgy

From previous unsuccessful attempts to macroetch irradiated uranium it had been postulated that the microstructure of uranium might be affected by neutron bombardment and by the fission fragments which are produced during pile exposure. Micro-examination of a specimen which was removed, by punching, from a slug exposed to 240 MWD/T revealed that the microstructure was

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1197797

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plainly visible when polished and etched by normal procedures and then viewed under polarized light. Preliminary indications are that the only effect of this low irradiation is to cause slight grain growth and to increase the prevalence of twin bands. These twin bands usually are associated with mechanical deformation.

During the punching of chemical samples from wafers of irradiated uranium, it was observed that the wafers broke with each punching. Since this fracturing does not occur during the punching of unirradiated uranium, indications are that uranium becomes brittle during pile exposure as previously suspected.

A slug which was suspected of partial rupture was examined in air and placed in the laboratory "suspect-tester". No increase in water activity was detected after the initial ten hours of operation.

A previous examination of an irradiated "C" slug fabricated without an Al-Si bonding layer showed that no mechanical bond had developed on irradiation. A second sample of an irradiated "C" slug was cut from an area where can wall corrosion was evident. Again, the can wall was found to be still unbonded after pile exposure.

The remote controls and the target tube shock-proof case for the double crystal X-ray spectrometer were installed and tested. Preliminary assembly of the unit has progressed to the point where several single diffraction patterns were obtained. After suitable single diffraction patterns are obtained, the monochromating crystal will be positioned in the reflected beam and adjusted to the proper angle for discrimination between radioactivity and diffracted X-rays.

Advancing the delivery date of Cells 3 and 4 from October, 1953 to March, 1953 has made it possible to plan for essentially complete operation of the building by March. In order to accomplish this schedule a concentrated effort was directed toward completing the design of the necessary equipment for the cells. During the month the design drawings on eight items were completed.

Plant Services

Two autoclave failures were examined to determine the residual can wall thickness at or near the areas of failure. On the basis of the results obtained it was concluded that the failures were not due to Al-Si penetration of the aluminum can wall.

Metallographic examination of the June production rolling of Hanford uranium rods showed that all the samples examined were recrystallized and that the grain size was within the range for normal beta heat treated uranium. Results for the inclusion counts, using the technique recently developed, indicated that there was a wide variation in the inclusion content of the specimens.

1197798

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An investigation has begun of the properties of Hanford-produced UO_3 which may be responsible for its low fluorination reactivity as found by K-25. X-ray diffraction data on samples of UO_3 were obtained with a powder camera and a Geiger Spectrometer. Since the results indicated that hydration had occurred during exposure, new samples were obtained and prepared in a dry box. Protection from the humid air was accomplished by using a thin piece of Pliofilm over the face of the sample. The resulting X-ray patterns were very complex; consequently, standard samples will be required before positive identification can be made.

The replacement downcomer for 105-F is to be fabricated of AISI type 502 straight chrome steel and welded with AISI type 347 stainless steel. In order to evaluate this joint, weld samples were bent as simple beams to determine the comparative ductility of weld deposit, heat affected zone, and plate. Results indicated that the joint exhibited good ductility and was comparable to those obtained in mild carbon steel plates welded with E6010 electrodes. Qualitative results showed that the 502 plate was quite insensitive to notches.

ANALYTICAL RESEARCH

Analysis of Fuel Element Components

Preliminary results have been obtained in an investigation of the spatial distribution of nuclear reaction products within a pile-irradiated uranium slug. A wafer was cut from a three year old slug that had received 240 MWD/T exposure and this in turn was sampled by punching 1/16 inch diameter coupons across the diameter of the wafer. Each coupon was analyzed for total plutonium alpha, plutonium-241, beta activity, and gamma activity. The concentration of each component formed a smooth curve when plotted against the location; the minimum in each case, however, appears to be displaced slightly from the center of the slug. As previously reported, the total plutonium, beta activity and gamma activity concentrations were higher at the surface than the center of the slug. Further, americium analyses indicated a higher Pu^{241}/Pu^{239} isotope ratio at the surface.

Slug sampling in the manner described above does not allow analyses at exact positions within the slug, as is desirable to define exactly the variations in concentration near the surface. For this reason, methods for taking thin samples around the entire periphery of the wafer are under investigation. By insulating the sides of the wafer and immersing it in nitric acid, an undesirable pitting attack was obtained; however, by employing electrodissolution techniques in an agitated bath of acid a thin sample of uniform depth was dissolved.

Mercury contamination is suspected as a possible cause of certain slug failures during pile irradiation associated with a pitting-type corrosive attack of the aluminum jacket. Extremely sensitive methods were developed and applied to identify mercury on suspected jacket areas of cold and irradiated

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slugs. To date, 10 out of 14 such samples from irradiated slugs and 6 out of 7 samples from unirradiated slugs have given positive tests for mercury. The quantity of mercury found in each case was about 0.1-0.01 /ug. Positive results on the samples were obtained by two different methods. One method involves distillation of mercury from the sample into an absorption cell and measurement of ultraviolet absorption by the mercury. The second method involves dissolution of the sample, electrodeposition of the mercury onto a platinum wire, enclosure of the wire in a small glass capillary, and distillation of the mercury from the wire to a cold spot at the end of the capillary, where it is observed under a microscope. Both methods have a sensitivity limit on the order of 0.01 /ug, and both are being placed in the hands of Analytical Research Services personnel for application.

Such analyses for mercury are meaningful only when the results are interpreted in terms of the quantity of mercury that can significantly accelerate the corrosion of aluminum. Several tests have been carried out to throw some light on the latter question. In one case a strip of 2S aluminum was suspended in pile water over a mercury pool. The water was stirred in such a way as to eliminate the possibility of mechanical transfer of the metallic mercury to the aluminum. After seven days of this treatment, there were several visible corrosion areas on the aluminum. Each gave a positive mercury test with a dye technique, and subsequent analysis identified 0.5 /ug of mercury in one of the areas. In another line of investigation a strip of 2S aluminum was coupled with a calomel electrode and immersed in various aqueous media: viz., pile water, distilled water, dilute acetic acid, or standard corrosion medium. It was observed that if small quantities of mercury were placed on, and allowed to amalgamate with the aluminum, a sharp decrease in potential resulted, but that after a period of time, the potential drifted back to the original value. With more than 10 /ug of mercury, the drift occurred over a several hour period; with 0.1 /ug of mercury, the drift occurred over a several minute period.

Hanford cooperation on the Bluenose Project has continued. Standard solutions were prepared and sent to each of the participating project sites as the first step in assuring analytical uniformity. Subsequently, seven Bluenose samples have been received at Hanford, and five have been analyzed by the research and the control laboratories.

Radiochemical Techniques

The conduct of radiochemical determinations of total plutonium and of the various plutonium isotopes requires very thin, uniform films on the counting disc. The electrodeposition technique developed for this purpose met the requirements but employed a slow and inconvenient pre-oxidation step with ozone. Continued work has led to the replacement of this step with a rapid electrolytic oxidation in perchloric acid that yields 99 per cent overall recovery.

The presently employed control procedure for determining americium-curium in process streams uses a precipitation step and requires two hours for a determination. Excellent results have been obtained on synthetic samples with a TTA

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extraction technique that would require only one quarter of this time. The extent of plutonium interference and the behavior of curium remain to be determined.

With the present state of development of gamma ray scintillation spectrometry a mixture of all fission products, all at about the same low activity levels, may be resolved and individually detected, with but six exceptions. Each of these exceptions may, however, be resolved using the beta scintillation spectrometer that is under development. Continuing work with the gamma instrument is directed towards the determination of the counting efficiency as a function of gamma energy so that counting rates obtained with the instrument may be converted to disintegration rates. Completion of this work will allow specification of fission products in UO_3 in terms of disintegration rates rather than the present confusing terms of counting rates. In addition, the spectrometric technique will permit discrimination against U^{237} and uranium daughter radiation.

Spectrochemical Techniques

A suitable method for the determination of iron in pile water was developed involving scavenging the iron by precipitation of manganese dioxide and then determining it colorimetrically with thioglycollate acid. The method is applicable in the range 1-25 ppb with a precision of ± 1.5 ppb. Several other scavenging agents, e.g., calgon, activated alumina, and a cation exchange resin, were found to be unsatisfactory before successful results were obtained using manganese dioxide. The method has been tested with actual pile water in the 300 Area and will now be tested in the 100 Area to check for possible chlorine interference in the freshly sampled water. A colorimetric procedure for determination of mercury in the range of 10-75 ppb gives satisfactory results on a one liter sample in a period of about 10 minutes; chlorine interference has been eliminated by addition of hydrazine.

The previously described laboratory model of a unit for automatic photometric determination of permanganate in solution has been turned over to Separations Technology Plant Assistance personnel for the conduct of Redox head-end studies. A duplicate unit is under construction for further investigation of its in-line application and continued studies of the apparently abnormal decomposition of permanganate by uranium nitrate and chromic ion in solution.

The proposal to lower specifications for impurities in UO_3 product prompted an investigation of the adequacy of present spectrographic methods for determining lower levels of impurities. A comparison of the 3706 and the 234-5 Building laboratory instruments shows appreciable differences in sensitivity for some elements and thus suggests the need for further investigation. Sodium may be determined by flame photometric techniques in the range of 1-10 ppm with a precision of about ± 0.5 ppm. The limit of sensitivity of the method is in the order of 0.1 ppm. Uranium constitutes an interference that may be corrected for. Direct flame photometric determination of calcium is impractical because of the strong interference from uranium; further work will involve study of possible preliminary extraction separations.

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Mass Spectrometry

The research mass spectrometer in the 300 Area has been shown to yield good resolution between the U^{235} and U^{238} peaks, and will be tested to determine if it is presently suitable for resolving adjacent mass peaks, as is desired for plutonium isotopic analysis. A uranium fluorination train is being constructed for research purposes and use as a stand-by in case of failure of the Redox laboratory instrument.

A burned out transformer and a shift of personnel led to difficulties in the mass spectrometric analysis of UO_3 in the Redox laboratory. Instrumental difficulties were corrected, and Instrument and Analytical Research personnel prepared and conducted a two day training course to acquaint control analysts and instrument troubleshooters with the operation of the instrument and the identification of off-standard conditions. A series of oscilloscope patterns is being photographed to aid in the latter.

The mass spectrometer research team devoted a considerable portion of the month to assistance to the control laboratories. The G.E. instrument in the 100 Areas was made operable by replacing a burned out filament, modifying the electronic circuit, and eliminating manifold leaks. At month's end excellent results were being obtained in the analysis of standard samples. At present the instrument and analytical techniques are being readied for routine analysis of C Pile atmosphere during start-up in order to evaluate the rate of displacement of the initial atmosphere and the extent of hold-up of gases by the graphite.

Electrochemical Techniques

Previous work on the development of a coulometric titration for plutonium was carried out with dichromate as a stand-in. During the month the first titrations of plutonium solutions were carried out. One set of six titrations of a solution known to contain 11.244 g/l of plutonium yielded a result of 11.20, this value being obtained entirely by electrical measurements. A significant improvement in the automatic endpoint anticipation accrued from the use of the holdback technique, whereby a small volume of the sample is mechanically isolated from the solution until the titrator reaches a preliminary endpoint. After addition of the withheld volume, the final endpoint may thus be approached with caution and without excessive loss of time.

A conductometric determination of acid in Redox and Metal Recovery streams reported by KAPL has been checked locally. The technique appears to be satisfactory for samples of larger volumes but not for small samples such as would be required with highly active materials.

Standards Program

A series of acid deficient aluminum samples was prepared and analyzed by both the volumetric and pH methods at Hanford and at the Allied Chemical and Dye Corporation laboratory. The latter concern is the supplier of aluminum

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nitrate employed in the Redox Process. Since the results confirmed the Hanford observation that the two methods give identical results if suspended alumina is removed from the sample prior to titration for acid, the supplier has agreed to conduct the analyses on the basis of the alumina-free solution.

The control laboratory obtained excellent results in the analysis of a series of Redox and Metal Recovery standards submitted to check their performance.

Assistance through consultation and submission of standards promises to eliminate difficulties existing with the gas analysis equipment in the 300 Area.

Analytical Research Services

Work Volume Statistics

Source and volume statistics for samples analyzed by service laboratories during the period September 24 to October 23, 1952 are as follows:

	No. Samples	No. Analyses
Research and Development		
Applied Research Unit	147	272
Pile Technology Unit	514	2634
Separations Technology Unit	3191	5408
Technical Services Unit	0	0
Process Control	962	6538
Others	69	523
Totals for Sept. 24-Oct. 23	4883	15,375
Totals for Sept.	3983	10,273

Effective October 1, the Redox and 234-5 analytical control laboratories transferred form the Analytical Services Sub-Unit to the Manufacturing Department and the remaining service laboratories in the Sub-Unit combined to form an enlarged Analytical Research Sub-Unit. These Analytical Research service laboratories are responsible for the conduct of chemical analyses in support of all research and development in the Engineering Department and for the conduct of certain analyses agreed upon with the other departments. The facilities involved are the following:

100 Area Water Laboratory - equipped for the analysis of water samples stemming from pile research and development.

100 Area Mass Spectrometer Laboratory - equipped for mass spectrometric gas analysis and the determination of isotopic ratios.

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Applied Research Unit

300 Area Spectrographic Laboratory - equipped for qualitative and quantitative spectrographic analyses.

300 Area Chemical Research and Development Laboratories - responsible particularly for providing analytical service to the Separations Technology Unit.

Special Analytical Services Laboratories - equipped and trained for the conduct of an extremely wide variety of chemical analyses arising from needs of all parts of the plant.

During the month the 100 Area Water Laboratory devoted the bulk of its effort to support of the 100-D Flow Laboratory experiments on aluminum corrosion and pile film formation. Arrangements have been completed to relocate the laboratory in the 108-B Building to allow consolidation with the mass spectrometer laboratory. Efforts in the latter laboratory have been directed towards the determination of hydrogen/deuterium ratios in support of Radiological Sciences Department research, and, as previously discussed, in readying the G.E. spectrometer for C Pile gas analyses.

The 300 Area Spectrographic Laboratory continued its routine process analyses of uranium, Al-Si, and tin for the Metal Preparation plant. Other work included the classification of steel involved in corrosion failure at the Uranium Recovery plant, essential material analyses, and a large variety of impurity determinations. A procedure has been developed for determining iron and silicon in uranium which requires only two-thirds the time taken by the present wet chemical methods; arrangements were made with the Manufacturing Department to undertake these analyses on a routine basis. Other development work included an improvement in the determination of impurities in uranium metal and modification of the excitation conditions employed with the carrier concentration method which reduces the analytical time by 20 per cent, lowers the detection limits for barium, cadmium, and lithium, and allows the determination of six additional elements. Impurity determinations in UO_3 product are being continued in this laboratory. However, the comparable analyses of separations process uranium streams have been transferred to the 234-5 laboratory spectrograph.

The Chemical Research and Development Services Laboratories continued analytical work on a wide variety of research and development samples in support of various separations studies. Early in the month a 40 per cent increase in work load from the Chemical Development Sub-Unit necessitated enlargement of the five-day, two-shift operation to a seven-day, two-shift operation.

The Special Analytical Services Laboratories continued to provide a wide variety of analyses, such as for impurities in corroding sections of stainless steel, sodium in aluminum cans, water retention of concrete aggregates, determination of UO_3 particle size, analysis of experimental uranium alloys and determination of mercury in miscellaneous materials.

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Applied Research Unit

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INVENTIONS

All Applied Research Unit 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 October, 1952. 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.

Signed: FW Albaugh/792

F. W. Albaugh, Manager
APPLIED RESEARCH UNIT

FWA:ltc

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SECURITY INFORMATION

TECHNICAL SERVICES UNIT

OCTOBER 1952

11-11-52

VISITORS & BUSINESS TRIPS

Off-site visitors to this Unit were as follows:

H.L. Penberthy of the Penberthy Instrument Co., Seattle, visited the Equipment Development Group and Bldg. 222-S on October 31 to inspect the operational performance of the lead glass viewers installed in the multicurie cells. He also discussed viewers with Bldg. 111-B personnel.

Business trips made by personnel of this Unit during the month were as follows:

J.F. Gifford, R.E. Field and D.C. Kaulitz spent October 7, 8 & 9 at ORNL where each gave a paper at the Information Meeting on Hot Laboratory Equipment sponsored by that site.

C.G. Stevenson spent October 3 & 4 at ANL, October 6 & 7 at the University of Rochester, October 8 at the Vitro Corporation, New York, and October 10 at General Electric Nucleonics Office, Schenectady, in meetings and discussions concerning various phases of classified files procedures.

ORGANIZATION AND PERSONNEL

Personnel totals for the Technical Services Unit are summarized as follows:

	September	October
Laboratory Engineering	62	57
Technical Information	86	86
Administrative	3	3
Unit Totals	151	146

Effective October 27, operation of the Technical Stockroom in Bldg. 3706 was transferred to the Stores Unit, Utilities and General Services Department. Two stockroom keepers and three stockroom helpers were involved in this transfer of responsibility.

One exempt Technical Abstracter was employed during the month and the Supervisor, Reports and Abstracting Services resigned.

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LABORATORY ENGINEERING SERVICES

Mechanical Shops (Bldgs. 1717-D, 3706 and 222-S)

Work volume statistics for the Mechanical Shops are as follows:

	Customer Unit or Program	September No. of Jobs	September Man-Hours	October No. of Jobs	October Man-Hours
Work Done on Jobs Completed	Applied Research	23	433	29	155
	Pile Technology	67	1635	31	564
	Separations Tech.	29	802	24	1288
	Technical Services	8	415	4	30
	Others	12	94	5	37
	Sub-Totals	139	3379	73	2074
Work Done on Jobs Not Completed	Applied Research	4	125	4	56
	Pile Technology	13	381	17	490
	Separations Tech.	10	611	14	1008
	Technical Services	7	483	7	435
	Others	2	16	4	92
	Sub-Totals	36	1616	46	2081
Total Work Done			4995		4155
Work Backlog:					Man-Hours To Complete
Jobs Started	Applied Research	4	115	4	691
	Pile Technology	13	483	17	561
	Separations Tech.	10	959	13	875
	Technical Services	7	676	7	723
	Others	2	28	4	345
	Sub-Totals	36	2261	45	3195
Jobs Not Yet Started	Applied Research	4	55	2	36
	Pile Technology	17	974	13	710
	Separations Tech.	16	1260	12	874
	Technical Services	3	92	3	136
	Others	1	6	2	32
	Sub-Totals	41	2387	32	1788
Total Backlog			4648		5324*

*Includes 159 man-hours of work cross-ordered to other plant shops, and 341 estimated man-hours sent to off-site vendors. Cancellations amounted to 156 man-hours. The shop is operating on a net 4824 man-hour backlog which will require 23 working days to complete with present forces.

The following work was completed for the Technical Units:

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Applied Research

A mounting table and surface plate was fabricated for the bi-crystal, X-ray diffraction unit. These parts, along with the previously fabricated X-ray target tube adjustment mechanism, the hot integrating sample holder and the monochromator mechanism were installed for preliminary testing.

A pair of hand-operated, stainless steel tongs designed to pick up slugs in a vertical position by clamping the ends were completed and delivered.

Separations Technology

A sample storage hood was completed and delivered to Bldg. 222-S. The hood was constructed of plywood and equipped with a hoist. Shop personnel assisted in the hood design. A heavily constructed table was fabricated to hold the hood and the necessary lead shielding. After fabrication the hood and table were painted with Amercoat #1574.

Eleven bearing retainers for Johnson 7BS pumps were fabricated. The retainers will be used in connection with glass-bearing development and testing. It was required that dimensional tolerances of .0003" be held on inside and outside diameters.

The nylon and steel gears specified for one of the miniature mixer settlers were not commercially available. This fact, combined with a design change of the drive mechanism on the second mini-mixer unit from a variable speed transmission to a pulley mechanism and the requested use of higher precision bearings on all units, delayed the completion of mixer settlers. The nylon and steel gears and an endless rubber belt for the pulley drive unit were fabricated by the shop.

Approximately three man-months of shop effort were expended on the revision of the 234-5 RM line. It is estimated that this work is 80% complete.

Pile Technology

The welding of forty 100-C Area horizontal control rod sections into a single straight section was completed. This long section was fitted with a 20' extension and the entire 40' length was assembled in an outer shielding tube. The whole assembly was leak-tested before delivery.

A mechanism for hydraulically fracturing both 4" and 8" slugs was fabricated. The slug supporting member is movable and will accommodate either size slug. The entire mechanism will be located at the bottom of the retention basin as part of the underwater slug inspection facilities.

A fully automatic, 24-position, X-ray casette was fabricated for the non-destructive testing program. The device will automatically position slugs, rotate them in 120° increments, and position the X-ray film while X-ray pictures are taken of the end cap welds. Mechanical operation tests in the shop were very successful.

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A second, boron carbide unit for in-pile testing was fabricated. This involved special welding techniques available only in the Technical Shops. Extremely thin walled aluminum tubing was welded to heavy can end plates. All welds were leak tested. Some of these welds were made using as little as 4 to 5 amperes of AC current.

Approximately 100 man-hours were expended in the fabrication of special sizing punches and dies for the new canning program.

Technical Services

Due to the urgency of the programs for Pile Technology and Separations Technology, only two man-weeks of shop time were available to the research and development program of Laboratory Equipment Development. Routine machinist and painter services to Buildings 3706 and 222-S were continued.

Glass Shops (Buildings 3706 and 222-S)

Work volume statistics for the Glass Shop may be summarized as follows:

	September	October
Jobs Completed		
New	104	61
Revisions	17	12
Repairs	23	13
Totals	144	86

Of this total, 11 jobs were fabricated of quartz or vycor. At the present time the shop has a backlog of four jobs which will require about two man-days to complete.

A large, glass system for the vacuum deposition of surface coatings was fabricated, installed and tested. All parts of this unit were fabricated or modified in the 3706 shop and tested after assembly on a large vacuum frame in Bldg. 3730.

The gas analyzer system in Bldg. 105, 100-H Area, required extensive repairs and rebuilding. Both lines were completely dismantled. One line was thoroughly cleaned and reassembled. The second line was completely rebuilt. Operational difficulties are still being encountered with these units. As a result of the difficulties encountered, glass shop personnel recommended the use of "Lubriseal" grease for all stopcocks. The grease and vacuum pump oils in use are not considered satisfactory for high vacuum work.

Equipment Development

Work volume statistics for Equipment Development, expressed in man-hours, are summarized as follows:

	September		October		
	Engineering	Drafting* & Misc.	Engineering	Miscellaneous	Drafting
Pile Technology					
Pile Materials	-	35	16	-	225
Pile Engineering	-	137	-	8	278
Pile Fuels	94	223	40	-	53

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	September		October		
	Engineering	Drafting* & Misc.	Engineering	Miscellaneous	Drafting
Separations Technology					
Chemical Research	431	238	300	45	163
Chemical Development	-	-	9	9	-
234-5 Plant Assistance	229	155	252	8	232
Applied Research					
Analytical Services	212	473	130	220	14
Analytical Research	37	18	42	8	87
Physics Research	-	10	-	-	9
Metallurgy	103	121	172	-	28
Technical Services					
RDS #TC-1	718	158	657	98	113
Engineering	568	783	678	610	258
Totals	2392	2351	2296	1006	1460

*Includes 1464 hours of drafting time.

Principal development activities are indicated below:

Pile Materials

A variable-stroke, sealed-bellows pump was designed for circulation of carbon dioxide gas.

Pile Fuels

The radiographic mechanism for high speed, automatic photography of slug jacket welds designed by this group was built in the shops. The mechanism has been turned over to Instrument personnel for installation of the electronic parts, also designed by this group.

Chemical Research

Major engineering effort was devoted to design, testing, and installation of equipment for a pulse column in the multicurie cell and to equipment for the enclosed miniature mixer-settlers at the Redox Laboratory. Both installations involve shielding and viewing windows and a large amount of equipment for remote manipulation, hot sampling, etc.

234-5 Plant Assistance

The design and installation of the operating equipment for the Bldg. 234-5 RM line dry mixer cell is about 70% complete. Mechanical operation tests have been made on several components, including the tumbler, in the hood mock-up. Performance tests to date appear very good.

Analytical Services

No major engineering developments were carried on during October. A number of

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revisions were made in laboratory equipment at the Redox Laboratory, including several gloved box installations and the new sampling station for the analytical line.

Analytical Research

Scoping studies were started for handling equipment for the "controlled irradiation experiment." This study includes shielding casks for slugs, remote manipulators, shielding materials and viewers for a hot chemical operation, and hot, liquid-sample handling and storing equipment.

Metallurgy Research

Mechanisms for bi-crystal, X-ray diffraction unit were completed in the shops, including the sample holder, crystal holder, and X-ray tube holder. Mechanical operation tests were very successful.

Tests were made of a proposed method of plaster casting to obtain replicas of defective slugs. Preliminary results showed excellent reproduction of surface defects and extremely small shrinkage.

RDA #TC-1

The dual-channel integrator assembly for the airborne-alpha recorder was completed and the circuits completely rechecked. The integrator is a very low level, two channel, differential counting rate meter in which the output reflects the difference between two counting rates. It provides a five-minute and a twenty-minute half-time setting. This will permit significant detection below the range of one count per minute difference between two detection chambers. Normally, one chamber will be used to measure the background level.

The automatic sampler for use with the in-line alpha counter was completed in a bread-board model, and successful preliminary cold runs were made.

All cold tests of the decontamination sandblast chamber were completed, and it was ready for hot operation. Considerable difficulty was experienced in getting a good separation of the grit to prevent rapid loading of the hot exhaust filters while maintaining a readily decontaminable interior.

A novel, sealed pump made of polythene and stainless steel was designed for use in disposal pumping of laboratory hot liquid wastes. It is an air-operated pump, without external shaft seals or packing glands, so designed that leakage, if any, will go out of one of the two discharge lines.

New Laboratory Planning

Mechanical Development Bldg., Proj. C-406

Bid invitations covering the proposed Phase II construction for the interior finishing of this building were issued by the AEC on October 21. Bids will be opened on November 25.

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Radiochemistry Bldg., Proj. C-381

This building is approximately 49% complete. During October the roofing was almost completed and marked progress was made in suspending the ceiling. The electrical work was steady. The air supply and exhaust fans have been delivered to the building. The heating system is roughed in. The partition framing is being installed to allow the pipework to progress in the chases. The shortage of small sizes of stainless steel pipe had slowed down the piping at month end.

Outside Facilities and Utilities, Proj. C-394

This project is about 86% complete. The sewer and 8" water lines were accepted. The neutralization tanks were installed in Bldg. 340, the Waste Retention and Neutralization Building, and piping is continuing in this building. Finish grading has started around the Library and Files and Biophysics Buildings. All electrical poles have been set but a delay was experienced in obtaining a reel truck large enough to handle the aerial cable. A second preliminary inspection of the Badge House was made on October 31; however, some exceptions remained after this inspection. Notable among these was a difference in elevation in one section of the second floor. Steps are being taken to correct this condition.

Radiometallurgy Bldg., Proj. C-385

This building is approximately 85% complete. All phases of the construction work are proceeding satisfactorily. Construction progress to date indicates that beneficial occupancy may be realized on or before January 1, 1953. The National Production Authority has approved directives for the three Intermediate Level Cells. Shipping dates are now as follows: The first on December 20, 1952; the second by January 19, 1953; and the third on or before February 19, 1953.

Library and Files Bldg., Proj. C-421

The formal inspection of this building was held on October 31. Major exceptions such as the air conditioning balancing and run-in were noted. Several miscellaneous small items are to be corrected.

Solvent Storage Bldg., Proj. C-441

The rescoping is still being held up by the rush of higher priority work.

Pile Research and Development Bldg., Proj. C-414

This building is approximately 57% complete. During this month installation of the Hauserman partitions was started in the first and second floor office area. The 50' steel exhaust stack which was successfully lined with flame-sprayed polythene was completed by the contractor and set in place. The building is now completely enclosed, and the finish paint coat was being applied to the exterior.

Building Services

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Building 3706

	September	October
Purchase Requisitions		
Total number processed	159	151
Number requiring emergency handling	12	30
Work Orders Processed	62	81
Miscellaneous Services		
Number store orders processed	799	816
Stores stock requests	0	0
Office furniture requests	11	3
Office machines sent in for repair	7	13
Precious metal transactions	12	7
Trips to 200-W for contaminated waste disposal	7	7
Special messenger trips	42	46
Standards Laboratory		
Number of standard solutions prepared	11	32
Stock solutions dispensed	69	88
Calibrations Laboratory		
Number of calibrations performed	18	3
Number of calibrated glassware dispensed	23	3
Number of checked glassware dispensed	243	87
Photographic Laboratory		
Number of work requests	27	21
Number of negatives	293	101
Number of prints	786	503
Number of slides	71	10
Color photos	2	22

The operation of the 3706 stockroom was transferred from the Technical Services Unit to the Stores Unit, Utilities and General Services Department, on October 27. Two stockroom keepers and three stockroom helpers were transferred along with all supplies.

Material Control accepted responsibility for maintaining a continuous account of equipment expenditures for RDS and capital items for the Applied Research Unit. The unit budget forecast will be used as a guide. Central card files will be used for the control of all capital equipment purchased by the Applied Research and Technical Services Units. Movements of equipment will be entered on cards and excess equipment will be made available to other Units under the established system.

TECHNICAL INFORMATION SERVICES

Plant Library

Work in the Plant Library proceeded routinely during the period. Work volume and book statistics were as follows:

	September	October
Number of books on order received	208	268
Number of books fully cataloged	231	296

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	September	October
Number of bound periodicals processed but not fully cataloged	67	66
Pamphlets added to the pamphlet file	496	123
Miscellaneous material received, processed and routed (including reprints)	33	49
Books and periodicals circulated	5,332	4,340
Reference services rendered	1,711	1,443
Inter-library loans	29	12
Photostats from off-site	20	19
New periodical titles added to Kardex	10	12

	Main Library	W-10 Library	108-F Library	Total
Number of books	9,890	4,631	584	15,105
Number of bound periodicals	6,060	1	737	6,798
Totals	15,950	4,632	1,321	21,903

A procedure for eliminating the use of purchase requisitions for reference materials costing less than $10 was set up. Under this procedure, which has been approved by the local AEC and GE Purchasing and Accounting, the Library will place a direct order with the vendor by letter. The letter will request the vendor to render his invoice to the Plant Library. On receipt of the material the Plant Library will cost code the vendor's invoice and indicate thereon that the material has been received. After approval of the invoice by Plant Library supervision, it will be forwarded to the Accounts Payable Unit, General Accounting Section, for payment. In cases where the vendor requires cash with the order the Plant Library will forward the letter with a written request to the Accounts Payable Unit to issue a check. This request will include the following information: vendor's name and address, description and price of material, cost code to be charged and approval for payment. Accounts Payable will prepare and mail the check with the letter. The Plant Library will advise the Accounts Payable Unit when the material has been received. This procedure will not affect the ordering of items normally handled in the book trade which are presently being purchased on bid through a single dealer. It will be used exclusively for items normally not handled by book dealers. This includes such materials as extension service bulletins, reprints of periodical articles, institute publications, translation, specifications, etc.

The back periodical files of the Library were augmented by the addition of the first 30 volumes of the very valuable "Journal of Physical Chemistry." These volumes, which have been extremely scarce for many years, were recently reprinted by Stechert-Hafner in New York.

To expedite the circulation of periodicals, a new envelope with a cellophane window has been adopted for use. This will permit the periodical routing list, which is normally attached to the cover of the periodical, to show through the window and serve as the address. This will eliminate the necessity for addressing the envelopes and result in substantial time saving.

The securing of pamphlets and report material from non-AEC sources continued as an important Library function.

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A sampling of typical reference questions handled by the Library reference staff is as follows:

Methods of preparing a colloidal suspension of graphite.
Designs for dampers in heating, ventilating systems.
Method for separation of hydrogen from water-salt solution.
Air velocity necessary for carrying dust, sand, or uranium particles in closed systems.
Method for finding density of uranium.
Hazards encountered in storage of $NaNO_3$.
Electric power consumption and telephone usage per capita in various cities.
How are ball bearings manufactured?
Measurement of productivity of a manufacturing department not based on comparison with others.
Solubility and rate of insolubility of hydrogen fluoride in water.
Machine shop layout.
Table of Neumann's functions.
Theory of X-ray photometry.
Compressibility comparison for various metals.
Equation of a circle in polar coordinates.
Location of chemical industries in the Pacific Northwest.

Classified Files

Work volume statistics for the Classified Files were as follows:

	September	October
Documents routed and discharged	22,636	25,117
Documents issued	8,428	9,940
Registered packages prepared for off-site	367	310
Inter-area mail sent via transmittal	43,713	52,208
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	156	140
(b) Because of transfer of work assignment	2	3
(c) Because of termination	8	3
Inventory reductions:		
Copies of documents destroyed	6,615	12,887
Copies of documents downgraded to:		
RESTRICTED and OFFICIAL USE ONLY	236	97
CONFIDENTIAL	0	0
Copies of documents declassified	152	88
Classified documents located which were unaccounted for in previous inventory	95	55
Standard storage cartons of material retired to the Records Center:		
Unclassified and OFFICIAL USE ONLY	68	11
Classified	9	0
Off-site originated reports requested by Hanford personnel	139	81
Hanford originated reports requested by off-site personnel	343	252

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The steadily rising graph of Classified Files business should be noted. The statistics on three key operations for the last three months are as follows:

	August	September	October
Documents routed and discharged	20,070	22,636	25,117
Documents issued	7,918	8,428	9,940
Mail handled	35,339	43,713	52,208

This has resulted in some backlogging of work which required overtime to handle. A sampling of reference questions worked on by Classified Files personnel is as follows:

Material on lanthanum plutonium fluorides.
Interim report #1 on Production Test 105-184-P.
Effect of sulfamic acid on stainless steel used in the Purex Process.
Report on the Analysis of essential material.
Report on coordinate zone accounting system.
Effect of zirconium-jacketed slugs on the Redox process.
Effect of temperature on the velocity distribution of heavy neutrons.
Functional tests #42 - 65 on graphite.
Effects of radiation on plastic materials.
Thermal conductivity of graphite in the 105-D pile.
Precision and accuracy of AT analysis.
General chemistry of plutonium compounds.
Mechanism of in-pile slug ruptures.
Radiation effects on television equipment.

The annual field inventory of classified documents is proceeding on schedule. Since May 19, 1952, 890 offices have been inventoried out of a total of approximately 1,350 holders of classified documents. It is anticipated that the inventory will be finished by year end because most of the large individual collections of documents have been completed. The number of offices inventoried per month may be expected to increase.

Notable progress is being made in reducing the number of unlocated documents. For instance, the 1952 final report to the AEC of non-research and development documents showed 389 documents unlocated. This number has not been reduced to 241. Approximately 50 percent of the reduction was due to locating missing items, and the balance was accounted for through declassification by the Non-Technical Document Review Board.

The manual on the preparation and care of classified documents has been completed and is in the hands of the printers. Advanced notification regarding it was distributed Plant-wide on October 31 for the purpose of developing a distribution list. Plans have been worked out with the Training and Program Development Section for a series of area meetings where the guide will be discussed and questions regarding it answered. Classified Files will be responsible for the method of presentation used.

The staff training program is proceeding satisfactorily. Much valuable experience is being gained and will be used to improve the second series of presentations.

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Seventeen classes were held during the month and attended by all Classified Files personnel. The manual of operating procedures on which the classes are based is now complete except for two clerical positions in the Files. Sixty percent of it has been distributed in final form to the staff for daily use.

A combination title page and cover sheet has been developed for use with "internal" report type memoranda. Preprinted masters which require only the insertion of title and copy information are now available from Stores. These will be used with a heavy, red-bordered cover paper. Their use will eliminate need for cover sheets on reports of this type, with substantial savings in typing time.

The Head of the Technical Information Sub-Unit attended a meeting of the Technical Information Panel at Rochester, New York, on October 6 and 7. October 6 was devoted to Committee meetings, including the Library and Document Control Committee of which the Hanford representative is chairman. The regular meeting of the entire Panel was held on October 7. Among the many valuable information programs being worked on by the Panel are the following: Reorganization of the Reports Index, particularly the older sections; preparation of a guide for users of the Reports Index; revision of CA-1927, "Subject Headings Used in the Catalogs of the United States Atomic Energy Commission," and Appendix A of that document; procuring and handling classified reports originated by non-AEC agencies; methods of indexing progress reports, metallurgical reports, etc.; development of a general classification guide; project distribution of "internal" reports; the Reactor Handbook; revision of CL-697, the so-called project handbook; securing and translating Russian journals not on the approved export list; transmittal of unclassified information to foreign countries.

Following the Panel meeting the Hanford representative visited the Vitro Corporation in New York where the matter of the disposition of classified records created under sub-contract G-148 was discussed. Vitro suggested that they supply to Hanford microfilm copies of their basic document accountability records in lieu of the audit by Hanford personnel previously agreed upon. Subsequent discussion of this matter at Hanford brought agreement that the suggestion was impractical and that the original plan of making an on-the-spot audit will be carried through.

Following the visit of Vitro the Head of Technical Information visited the Nucleonics Office in Schenectady to discuss the matter of establishing that office as an AEC approved classified document accountability and transfer station. A recent request to the local AEC seeking this approval had been shelved until the relationship of the Yellow File to the proposed accountability and transfer station was clarified. It was agreed that the best course appeared to be to separate the two functions so that the Yellow File would not comprise the basic working file of the new document accountability and transfer station but would continue to be operated as a Hanford branch file. However, since the functions of the Nucleonics Office have been expanded and personnel there will be issuing and receiving documents on matters not relating to Hanford activities, it was agreed that we would continue to press for the establishment of a separate document accountability and transfer station. Such a station would not be a branch of the Hanford files, now would its activities be monitored from Hanford.

In this connection it should be noted that the establishment of a document accountability and transfer station at the General Engineering Laboratory has

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worked out very well. This was set up largely at the request of Hanford to eliminate difficulties in the handling of classified material with General Engineering Laboratory personnel. From the volume of material handled, the need for such a document control center was long overdue. Its inception has smoothed out Hanford's problems on exchange of classified documents. The transfer of document accountability for material transmitted directly to General Engineering Laboratory personnel prior to the establishment of the station has been substantially completed.

Reports and Abstracting

The work statistics for the group were as follows:

	September	October
Formal Research and Development Reports	7	12
Formal reports in process	10	11
Reports abstracted	523	318

The bibliography on "Coating, Canning and Testing Methods for Natural Uranium Fuel Elements" (HW-25365) was issued during the month. As indicated in previous reports, this bibliography had been given a top priority in order that copies might be available for off-site personnel who planned to attend the conference on fuel elements held at Hanford November 6 and 7. Fortunately, the bibliography was completed early enough to give those attending the conference an opportunity to review the background of this problem before the meeting.

A bibliography on the 200 Series Production Tests is ready for final editing and preparation of the indexes.

INVENTIONS

All persons 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 the period covered by this report 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.

Inventors	Title
J.F. Gifford & T.R. Cartmell	Continuous Airborne-Alpha Contamination Recorder.

Signed J.W. Underwood
J.W. Underwood, Unit Manager

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DESIGN SECTION

October, 1952

VISITORS AND BUSINESS TRIPS

E. L. Knoedler, Sheppard T. Powell, Baltimore, Maryland, visited Hanford October 1-13 to observe pumping tests.

The following men from Vitro Corp., New York, N. Y., visited Richland for consultation on Purex Scope Design: W. J. Robinson, October 7-8; S. M. Stoller, October 22-29; J. B. Thomas, October 20-31; and M. V. Slawinsky, T. G. Watkins, and M. M. Savelson, October 21-24.

H. C. Feldman, Chas. T. Main, Inc., Boston, Massachusetts, visited Hanford October 10-20 to discuss railroad layouts.

C. H. Robbins, North American Aviation, Inc., San Francisco, California, visited Richland October 16-17 to discuss design problems for K Area Graphite.

M. F. Parr, Foxboro Co., Foxboro, Massachusetts, visited Hanford October 27 to discuss calibration of 105-C Power Calculator.

E. B. LaVelle visited Knolls Atomic Power Lab., Schenectady, New York, October 1-2 to attend a meeting of the AEC Welding Committee.

G. S. Cochrane visited Vitro Corp., New York, New York, and Crane Co., Chicago, Illinois, October 14-25 to discuss connector design.

C. W. Harrison and E. Hollister visited Cleveland Equipment Works, Lamp Division, General Electric Co., Cleveland, Ohio, October 16-17 to discuss automatic machines and to review proposals for mechanization; National Metal Show, Philadelphia, Pennsylvania, October 20-21 to discuss furnace crucible design and equipment related to mechanization program; Ajax Engineering Co., Trenton, New Jersey, October 23 to discuss furnace control design; and General Electric Co., Schenectady, New York, October 24-25 to discuss automatic machine controls.

M. H. Russ, G. M. Roy and E. P. Peabody visited Allis Chalmers, Milwaukee, Wisconsin, October 18-22 to discuss pumps & pump drive machinery.

C. O. Clemetson visited Chas. T. Main, Inc., Boston, Massachusetts, October 20-25 for consultation on Project CA-512-W criteria.

R. C. Hoffman visited Chas. T. Main, Inc., Boston, Massachusetts, October 21-24 to confer on K Water Plant facilities.

G. H. Strong visited General Electric Co., Schenectady, New York, October 24-31 to witness tests of electromagnetic conveyor.

R. C. Hollingshead visited Bird Machine Co., South Wapole, Massachusetts, De Laval Separator Co., Poughkeepsie, New York, and Sharples Corp., Philadelphia, Pennsylvania, October 30-November 1 to discuss liquid-liquid centrifuges.

1197819

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ORGANIZATION AND PERSONNEL

Personnel Statistics:

	September 30			October 31		
	Exempt	Non-Exempt	Total	Exempt	Non-Exempt	Total
Design Management	5	1	6	5	2	7
Process Engineering Unit	56	21	77	56	21	77
Design Planning Unit	12	13	25	12	13	25
Design Engineering Unit	70	17	87	71	17	88
Total Section Personnel	143	52	195	144	53	197
Technical Graduates (Rotational)	___	24	24	___	19	19
TOTAL	143	76	219	144	72	216
Personnel on loan to Design Section			10			11

Accessions = 11
Separations = 14

GENERAL

Design Section engineering effort for October was distributed approximately as follows:

	Man Months Expended	% of Total
1952 Expansion Program	118.2	67.0
Research & Development	17.9	10.2
Other Projects & Design Orders	40.3	22.8
TOTAL	176.4	100.0

Negotiations were continued with the Aerojet Corporation for the proposed design assistance contract. This contract for the services of a number of Aerojet engineers and draftsmen to work on the expansion program is awaiting Aerojet approval.

DESIGN DEVELOPMENT

Statistics:

The total number of engineering man months expended on research and development during October was distributed as follows:

		Man Months Expended	% of Total
RDS-10	Reactor Design Development	.5	2.8
RDS-11	Water Plant Design Development	.1	.5
RDS-12	Separations Design Development	4.2	23.5
RDS-13	Mechanical Design Development	8.8	49.2
RDS-14	Utilities & Services Design Development	—	—
RDS-15	Engineering Standards and Materials Development	4.3	24.0
	TOTAL	17.9	100.0

1197820

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Accomplishments:

RDS-10 - Reactor Design Development

Negotiations were completed for performing the test program on high-density concrete by the North Pacific Division Laboratory, Corps of Engineers, Troutdale, Oregon. Aggregates and materials have been packaged and are ready for shipment to Troutdale. Special forms for making test specimens are presently being fabricated at Hanford and will be shipped to Troutdale upon completion.

RDS-12 - Separations Design Development

The study on UO_3 requirements after completion of the Hanford Expansion program was completed, and the findings were reviewed by the Design Committee October 9. It was shown that additional UO_3 capacity is primarily dependent on the capacity of the TBP Plant. The operation of the TBP Plant at a low rate (120 to 200 tons of uranium per month) would require an increase of the UO_3 Plant to 25% of present design capacity.

The Design Development study for increasing the Redox Plant capacity to the Phase II level progressed during the month. Indications are that the economics of such an increase, which is expected to make possible the abandonment of the $BiPO_4$ and TBP processes, are extremely favorable.

A study of plutonium production costs for several alternates was prepared. Using the proposed Purex facility as a base (1.00), the relative cost for these alternates was as follows: Bismuth Phosphate - TBP Combination (5.44), present Redox Plant (2.35) and a new Redox Plant of 200 tons per month capacity (1.54).

RDS-13 - Mechanical Design Development

Preliminary tests of the "electroveyor" were run at the General Engineering Laboratory. Results of the tests were satisfactory, and it appears that shipment of the "electroveyor" to Hanford will be possible early next year.

The study of means for increasing the 234-5 capacity to meet requirements of the expansion program was completed with the recommendation to modernize the front end of the RG Line.

Preliminary design scope and schedule information for the proposed RG Line modernization was completed for inclusion in the project proposal.

Scope design work on several types of canning machines was continued during the early part of the month in preparation for a review meeting with engineers from the Cleveland Equipment Works, General Electric Company. After this evaluation, further work on all models except one was discontinued because of many unsolved corrosion problems and anticipated long development periods. Evaluation of the most favorable model is continuing.

1197821

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Specifications were prepared and a requisition was processed for procurement of low frequency induction furnaces for use in a prototype slug canning machine.

Development work was continued during the month on improvement of the 234-5 facility RMA Line general conveyor. General conveyor arms were fabricated and tested. Modifications in design have been completed for new arms.

RDS-15 - Engineering Standards and Materials Development

Fourteen design orders have been written to date covering the development of engineering standards. These orders represent a total commitment of $53,200.

The following revision to standards was approved by the HW Standards Committee during October:

HW-5301 - Austenite Stainless Steel - Type 304 and 304L, Revision 1

The progress on standards and materials development work for October is as follows:

a. Work on Standard Symbols and Abbreviations is approximately 70% complete.

b. Four standard welding specifications were advanced to 72% completion.

c. A new Design Guide Book being prepared for issuance is approximately 20% complete, an advance of 5% during the month.

d. Preliminary work to determine the feasibility of utilizing nitrogen in place of argon as a purging gas for stainless steel welding was completed. Results indicate that an extensive test program is justified.

DESIGN ENGINEERING

Statistics:

Design Engineering effort for the month of October was expended in the following categories:

	Man Months Expended	% of Total
CA-512-R 100-K Reactor	60.2	38.0
CA-512-W 100-K Water Plant	18.5	11.6
CA-513 Purex Separations Facility	30.2	19.1
CA-514 300 Area Expansion	8.3	5.2
Major Projects - Other than Expansion Program	27.7	17.5
Minor Projects and Design Orders	13.6	8.6
TOTAL	158.5	100.0

1197822

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The effect of the month's accomplishment on the design work load of the Design Engineering Unit in the several categories is given below:

	DESIGN ENGINEERING UNIT ENGINEERING MAN MONTHS			
	Backlog Start of Month	Orders Received During Month	Time Spent During Month	Backlog End of Month
CA-512-R	328.2	36.0	26.0	338.2
CA-512-W	43.7	0	5.7	38.0
CA-513	15.8	51.2	4.9	62.1
CA-514	79.9	0	3.1	76.8
Research & Development	79.2	0	6.5	72.7
Major Projects - Other	63.7	14.0	21.0	56.7
Minor Projects and D.O.'s	87.2	10.0	9.4	87.8
TOTAL	697.7	111.2	76.6	732.3

The backlog for the Design Engineering Unit as noted above is scheduled according to the following table:

	AVERAGE MAN MONTHS						
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Balance
CA-512-R	26	26	26	26	25	25	184.2
CA-512-W	5	5	5	4	4	3	12.0
CA-513	5	5	5	5	4	3	35.1
CA-514	8	12	12	9	8	7	20.8
Research & Development	7	7	7	7	8	9	27.7
Major Projects - Other	12	11	12	6	6	3	6.7
Minor Projects and D.O.'s	11	9	9	9	10	10	33.8
*Anticipated Future Work	0	0	0	8	9	14	

Present Total Backlog is distributed over the five engineering branches in terms of man months as follows:

	Authorized Projects	Anticipated Future Work	Total
Civil and Architectural	146.0	31.0	177.0
Mechanical	222.0	47.0	269.0
Electrical	175.0	37.0	212.0
Instrument	140.3	30.0	170.3
Standards	49.0	10.0	59.0
TOTAL	732.3	155.0	887.3

*Engineering manpower formerly assumed to be available from Aerojet assistance contract have been deleted from available manpower in this report.

1197823

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Accomplishments:

CA-512-R - 100-K Reactor

Design progress for the 100-K Reactor Facilities was 5.4% during the month with design completion 41.5% at the end of October.

Expenditures to date for design scope and detailed design are approximately $645,400 against an authorized amount of $1,455,000. At the present level of activity, expenditures are slightly in excess of $100,000 per month.

One hundred and forty-four requisitions have been issued to date by the Design Section for procurement of engineered items for the 105-KW and 105-KE facilities. The approximate dollar value of this equipment is $7,770,000.

The latest estimated number of drawings required for the design of Project CA-512-R is 1,526. Of this number, 903 have been started, 667 issued for preliminary comment, 445 issued for final comment and 342 approved to date.

The excavation and structural drawings required for the start of construction and concrete work on the process foundation and storage basin of the 105 Buildings were issued during the month. Over-all architectural and structural design is approximately 80% complete.

A proposal recommending a single cellular orifice-type downcomer was submitted to the Project Committee in October.

A preliminary design for a horizontal rod with a titanium outer shell was completed. A test request was initiated requesting an in-pile test to be conducted by the Technical Section on commercially pure titanium to determine the effect of radiation on hardness and tensile strength and to plot the decay curve.

The VSR test model utilizing a solenoid-actuated grapple was installed and testing was in progress during the month. In tests to date, all parts are functioning satisfactorily.

The design criteria and two scope drawings for the gas facilities were issued for formal comment.

The specification for the Power Calculating System has been prepared in preliminary form. The Instrument Engineering Diagram and the panel arrangement drawing were issued for formal comment.

A recommendation by the Radiological Sciences Department to increase the stack height from 200 to 300 ft. has been tentatively accepted, and the utilities criteria were revised to agree with this.

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1197824

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CA-512-W - 100-K Water Plant

The Title I and Title II design being performed by C. T. Main is approximately 38% complete, an advance of 9% during the month.

Expenditures to date by the Design Section are approximately $70,800. The rate of expenditure for Design Section effort is approximately $20,000 per month.

Major effort was concentrated on establishing design scope and approving scope drawings. Twenty-eight scope drawings have been received and twenty-two have been approved to date. Ten scope drawings were approved this month, leaving only six to be approved. These six are scheduled for approval next month.

One hundred and twenty-seven detail drawings have been received, of which 78 have been approved to date. This includes 42 drawings approved during October. Thirty-seven equipment requisitions with an estimated value of $13,600,000 have been received to date from the Architect-Engineer. Of this total, 25 have been approved and submitted to the Project Section.

A review of the Building 190-K process water pumping system design prepared by the Architect-Engineer revealed that insufficient kinetic energy was provided for flywheel inertia to carry the pump sets through the transition period upon loss of electric power. Discussions held with pump and motor manufacturers have established new primary pump motor specifications.

CA-513 - Purex Facility

The preparation of the study stage Project Proposal for the Purex Production Facility was in the final stages at the month's end. A draft of the proposal is scheduled for comment issue the early part of November with the final issue scheduled to be transmitted to the A.E.C. November 30. This proposal will include a Purex Separations Plant, UO_3 Plant Capacity Increase and 234-5 Modernization.

Progress on the Purex Facility design scope for the month was approximately 18.9% with completion to date 60%. Design scope activity is being performed with the assistance of 13 Vitro Corporation engineers. The rate of progress for design scope has been retarded during the past month due to lack of process information in solvent treatment which is necessary to firm up process flow diagrams. A revised design scope schedule was issued extending the estimated completion date to January 18, 1953.

Expenditures to the end of October were approximately $103,900. Authorized funds for this work are $715,000. Approximately $50,000 was expended during the month on design scope activity exclusive of effort by the Architect-Engineer.

Progress during the month included approval of the following design criteria: Instrument, Process and Canyon Rotating Equipment.

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1197825

Eight process flow diagrams were approved by the Project Committee. The ones remaining to be approved are primarily on solvent treatment. The engineering flow diagrams, process description and process control design criteria were brought up to date in accordance with the approved process flow diagrams.

The design criteria for the mechanical equipment covering the agitators, pumps, centrifuges and pulse generators were approved. Rough drafts on the design criteria for the vessels, concentrators, fractionators and extraction equipment were reviewed with the Architect-Engineer during the month, and the revisions resulting from those discussions are now in process.

Requisitions for bulk stainless plate and tubing, and for the remote maintenance and slave cranes were forwarded to procurement during October.

Detail design was started during the month by the Design Section on those portions of the Purex Plant utilities which are to be constructed by lump sum construction forces. Included are filtered and raw water lines, steam lines, railraods, and electrical transmission lines.

A comment issue has been prepared for a proposal and recommendation on a mock-up and/or jigging building for possible future use as chemical and spare parts storage. As soon as requirements for chemical storage are firm, the proposal will be issued.

CA-514 - 300 Area Expansion

Preparation of the study stage Project Proposal was completed during the month.

Design scope was advanced to 18% complete and three scope drawings were approved. Major effort included the preparation of alternate equipment layout proposals for the major portion of Manufacturing operations within the present 313 Building, including additions to service areas, storage areas, and offices.

A scope drawing of the floor plan for the Operations Change House was approved by the Project Committee, and it is expected that detail design work will start early next month subject to approval of authorized funds by the A.E.C.

CA-516 - Gable Butte Railroad

Final design work covering the installation of new track and the realignment of existing track was started during the month and is approximately 40% complete.

CA-431-B - 100-C Area Production Facilities

A considerable amount of engineering time was expended during the month in the witnessing of acceptance tests and assistance in clearing up minor troubles in components of the 105-C pile. The Ball 3-X System required design modifications

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1197826

to the Rockwell valves controlling the discharge of the balls at the base of the reactor and to the spring assembly actuating the trip mechanisms. After these two design modifications were made, the system functioned satisfactorily.

CG-482 - Pile and Pile Water Plant Improvement

Design is essentially complete. Additional work requested by the Project Section was performed and the results issued for comment. This included construction schedules, scaffolding layouts and material handling procedures.

CG-495 - Outlet Tube Temperature Monitoring - Spare Thermocouples 105-B, D and F

The design scope for this project was increased during October and the design schedule was revised to reflect this change. Design completion at the month's end was approximately 50% as compared to 90% reported last month.

CG-496 - Recuplex Installation - 234-5 Building

Design was advanced approximately 8% during October and is 35% complete. Accomplishments included the preparation of data for use in making a project construction estimate. This required preliminary design work on such items as the exhaust ventilation system, the chemical make-up room, the CAW waste disposal system, the distilled water storage tank, and the transfer line to Task I.

The slag and crucible hood framework, tank support and process piping drawings were issued for preliminary comment. The reception and blending hood tank support drawings were advanced and are scheduled for completion early in November.

Ten vessel drawings and the 15,000 gallon waste storage tank drawings were completed for approval. Chemical make-up tank drawings are being revised to allow the use of either a dip stick or bubble-type level indicator.

CG-502 - Additional Indication of Moderator Temperature, 105-B, D, F and DR

Mechanical design has been completed and instrument drawings for the 105-B, D and F installations transmitted to the Manufacturing Department. Design for the 105-DR installation was started and two drawings have been issued for comment. Total design was advanced approximately 10% during the month and is 90% complete.

D. O. 100352 - Hot Semi-Works - Sampling Jets

At the request of the Project Section, preliminary investigation of the failure of operation of the sampling jets is in progress. Indications to date are that failure may be due to insufficient line size and insufficient inert gas supply.

1197827

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D.O. 100359 - Rescope Solvent Building

Preliminary design was initiated during the month. Two drawings have been completed and released for project proposal and estimating purposes.

D.O. 100364 - Task I RMA Line - 234-5 Building

Preliminary design on the revision of Task I was started during the month. Five drawings are in progress and a description of proposed design is being prepared. This information will be used for estimating purposes and in the preparation of the project proposal. Progress at the month's end was approximately 71%.

D.O. 100375 - New VSR Test Tower

Work was started on the preliminary design of a steel tower to replace the existing wooden VSR Test Tower. Concurrent study of the feasibility of weather-proofing the existing tower was also undertaken.

D.O. 100383 - Remote Supervisory Control, 100 Area Water Plants

Preliminary design was started during the month and is approximately 25% complete. Data are being prepared for use in determing project proposal estimates.

DESIGN SECTION WORK IN THE CLOSING STAGES OR COMPLETED DURING OCTOBER

CG-447	-	Portable Meteorological Mast
CG-475	-	Crossheader Pressure Monitoring System
CG-492	-	Experimental "Ink" Facility, 105-DR
CG-498	-	Hanford Seismoscope System
E.O. 010671	-	700 Area Shot and Cover vs. Seeding
E.O. 010681	-	700 Area Roads and Walks
*D.O. 100231	-	Waste Gas Disposal - 234-5 Building
*D.O. 100239	-	Sample Gallery Ventilation for the 202-S Building
*D.O. 100258	-	Restroom Alterations - 700 Area Buildings
*D.O. 100297	-	Tile Field WI
D.O. 100300	-	Soil Science Laboratory Facilities - Bldg. 222-U
D.O. 100314	-	Installation of Fabrication Pits in 1716-D & F Garages
*D.O. 100327	-	Renumbering and Relettering Streets in 200 Areas
*D.O. 100343	-	Additional Facilities - 189-D Building
*D.O. 100347	-	Chip Cutter for RMA Line - 234-5 Building
*D.O. 100350	-	Additional Office Space - 234-5 Building Development Laboratory
D.O. 100355	-	Extension of Flagler Avenue and 720 Building Site Parking Lot
D.O. 100374	-	Xenon Generator

*Design Section Work Completed During October.

1197828

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INACTIVE PROJECTS

No active design work was performed during the month on the following assignments:

C-192 - Biology Laboratory 108-F Building
D.O. 100268 - Administration Building - 300 Area
D.O. 100346 - Final Design - Auxiliary Civil Defense Center

INVENTIONS OR DISCOVERIES

All persons in the Design Section 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 the period covered by this report 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.

INVENTOR	SUBJECT	REPORT OF INVENTION (DATE)
Ezra Hollister	Canning Machine	October 1, 1952

P K Beaton

MANAGER, DESIGN

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MONTHLY NARRATIVE REPORT - OCTOBER 1952

PROJECT SECTION

I. SUMMARY

A. ORGANIZATION AND PERSONNEL

Following the resignation of J. G. Carriere on October 10, 1952, T. G. LaFollette was appointed Manager, Project Services, effective October 11, 1952. There was no major change of organization. Following is a summary of personnel data for the Project Section covering October, 1952:

	October 1, 1952	October 31, 1952	Net Change
Employees on Payroll	469	469	0
Technical Graduates-Rotational	4	3*	-1

The end-of-month status involved these changes:

	Project Section Personnel	Tech. Grad. - Rotational
Payroll Additions	6	
Payroll Removals	6	
Transfers into Section	2*	2
Transfers from Section	2	2
Transfers within Section	2	

* One Technical Graduate-Rotational was assigned to the Section.

B. SCOPE OF ACTIVITIES

At the end of the month, construction completion status of major projects was as follows: CG-349, Hot Semiworks, 100% (with exceptions assigned to Minor Construction for completion at start-up); CA-362, Waste Metal Recovery (TBP) 98.1%; CA-431-A, 100-C Production Facility (Waterworks) 99.5%; CA-431-B, 100-C Production Facility (Reactor) 99.5%; CG-438, Ball Third Safety System, 14%; CG-483, Downcomer Repairs in 100-B, D, DR, H and Replacement in 100-F, 25%; CG-506, Repairs to 100 Areas Retention Basins, 5% (no change).

C. MATERIAL PROCUREMENT

There was considerable acceleration of procurement activity both for general projects and for Program "X". The contractor for 100-K Area has reorganized its procurement division, and is participating more closely in the overall construction program. There were several delays because of late delivery of equipment, particularly for the 300 Area Steam Plant Addition and the Fifth Boiler Addition for 200-W. The problem of aluminum nozzles for CG-482, Pile and Pile Water Plant Improvement, apparently has been solved. The vendor has shipped 650 approved nozzle castings to the machining plant. For CG-438, Ball Third Safety System, the hoppers and step plug units have been received, and a shipment of 30,000 lbs of boron steel balls is due to arrive in the first week of November. A difficulty concerning the rejected exhaust stack for the Radiochemistry Building has been referred to the AEC which is managing the project.

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D. CRAFT LABOR

There was a marked decrease in voluntary terminations of CPFF contractors' personnel. Percentage of terminations in October was 1.4%. Negotiations for the Boilermakers' Seven Western States Agreement were concluded with increases of wages, subsistence allowance, and travel allowance. A provision for special conditions on large government projects remains a part of the agreement. Negotiations toward the "Master Agreement" for Hanford Works made considerable progress. Most of the basic crafts have signed the basic Agreement or were committed to do so. Two of the shop crafts have signed a Hanford Works Addendum, and four others have converted their demands from general to specific terms. Two work stoppages, one of which caused a serious delay at 105-C, occurred and were settled during the month. One jurisdictional dispute at 100-K Area was settled without work stoppage.

E. SAFETY AND SECURITY

There was greatly increased activity in safety and security meetings during the month. Two special conferences for Unit Managers and line supervisors were scheduled and conducted by the Section Manager, with a total attendance of 42. Minor Construction Management Unit initiated a bulletin entitled "Safety News", and portions of the Project Services Unit wrote a "true or false" quiz to use for regular meetings. In ten regular monthly meetings, there were about 300 Project Section personnel . There was general strengthening of security measures, notably in monitoring systems for classified repositories.

F. HIGHLIGHTS OF UNIT ACTIVITIES

Inspection Services Unit completed both sessions of its orientation and training program for inspectors. The participants were enthusiastic about immediate improvement in morale as well as reviewing ways to provide more efficient inspection service.

Personnel of the Unit spent considerable time in improving liaison with purchasing agencies, Design Section, and engineering groups. Liaison personnel are now attending weekly review meetings with Design Units. Work is being done toward improving detailed review of requisitions and attachments.

Although there were fewer completed orders during October, there were considerable increases of general orders and requisitions and also of the orders and requisitions placed for Program "X".

Minor Construction Management Unit completed 14 work orders. The Unit accepted 14 work orders, some work on CG-482 (Pile and Pile Water Plant Improvements), and on October 20, 1952, responsibility for completing construction work on the 105-C Reactor. In the latter part of the month, the Unit made preparations to accept responsibility for completing construction work on the 105-C Waterworks. Total value of work now assigned to the Unit is $11,500,000, of which $3,400,000 remains to be accomplished. The project proposal for completion of Minor

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Construction Shops remains unapproved by the A.E.C. Construction schedules for completion of Projects CG-362 (TBP), CG-438 (Ball 3X), and CG-483 (Downcomer Repairs) were developed and published. Procedures and Extended SWP for the Ball 3X shutdown have been written and approved.

Project Engineering Unit worked on 65 project items and 14 informal requests, totaling $21,263,000. Three project proposals were transmitted to sponsoring organizations. Six project proposals and four informal requests were approved by the A&B Committee. Five authorizations were granted by the AEC. The Unit accepted and began work on one project and two engineering requests. Project CG-349, Hot Semiworks, was closed out on October 6, but funds were left for possible major alterations to the jet sampling system. Important projects now in progress include Ball 3X, Pile and Pile Water Plant Improvements, Downcomer Repairs, Experimental One Tube Ink Facility, Recuplex Installation, and Repairs to 100 Areas Retention Basins.

Project Services Unit continued its heavy workload of drafting and reproduction work. Drafting production was 304 new drawings, 109 charts and graphs, and 121 revisions. The drafting room average was 6.1 man-days per drawing. Reproduction output increased from about 320,000 square feet in September to about 343,000 square feet in October. On October 17, 1952, following an agreement between AEC and GE Security officials, Blueprint Reproduction discontinued accountability for all material classified "Restricted". The Estimating group completed 36 estimates, including the ones for expansion of the 200 and 300 Areas. Field Services personnel completed preliminary surveys for Purex design and also for double tracking of "D" line railroad. The History group issued seven histories. Project Control group completed the final draft of the Construction Budget Midyear Review and furnished the Midyear Review Manpower Budget to Engineering Accounting. The manual of operations for Blueprint Reproduction was published.

Reactor Projects Unit: As-built drawings of 100-C Waterworks were about 85% complete. Most T.C. buildings have been removed from the area. Acceptance test procedures were completed except for three. Punch list exceptions are to be cleared by Minor Construction forces, beginning November 3, 1952. All buildings are being operated by the Manufacturing Department.

For the 105-C Process Unit, 63 GE as-builts were approved, bringing the total to 222. No as-builts have been submitted by the architect-engineer. Acceptance testing disclosed the need for several modifications in the Ball Third Safety System. There were also the usual final adjustments of relays and the various components of the control systems (The work remaining on October 27 was assumed by Minor Construction forces). Present progress indicates that the unit will be turned over for start-up during the first week of November, 1952.

Final acceptance testing for CG-187-E (Radiochemistry Laboratory) was held October 31.

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Separations Projects Unit: Construction on CG-362 (TBP) progressed 2.4% to a total of 98.1%. Following the assignment of this project to Minor Construction forces, there was a considerable increase in efficiency of craftsmen. This was attributed to closer supervision of workmen and more detailed planning of work. Also, for the first time in the history of TBP, the pipefitters and welders were "pushing" the other crafts. Construction work has been completed except clean-up items under SWP conditions in Tank Farms BX, BY, and T; and some work in the BXR, and TXR Areas to be completed by Minor Construction forces. An additional $500,000 was allowed that Unit to complete the work. A detailed cost report and estimate of indicated cost are to be provided by the CPFF contractor in early November. Plant operations in Building 221-U are scheduled to begin November 1, 1952.

G. MONTHLY REPORT OF INVENTIONS AND DISCOVERIES

All persons in the Project Section engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge, no inventions or discoveries were made in the course of their work during the period covered by this report, except as listed below. Such persons further advise that notebooks and records, if any, kept in the course of their work, have been examined for possible inventions and discoveries.

None

J. B. McMahon, Manager-Projects

Date: October 31, 1952

II. STATISTICAL AND GENERAL

A. Significant Assignments

1. Initial Reporting

CG-495, Outlet Tube Temperature Monitoring Thermocouples 105-B,D,F

Design was about 80% complete; construction has not begun. This project is being managed by the Manufacturing Department. Revision #1 of the project proposal is to include replacement of all thermocouples on the rear face of B, D, and F piles.

CA-525, Permanent Auxiliary Combined Civil Defense and Plant Disaster Control Center

Design was 50% complete; construction has not begun. The project proposal has

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been approved by the A&B Committee and forwarded to the AEC. Final design and specifications are proceeding on a work order basis under ERA-732.

ERA-730, Solvent Storage Building Rescoping

Design was about 25% complete. This work order was issued to cover the rescoping of CA-441 (Solvent Building), particularly in reduction of floor space.

ERA-732, Final Design Auxiliary Civil Defense and Plant Disaster Control Center

Design was 50% complete. Final design and specifications are proceeding on a work order basis while the project proposal is awaiting authorization.

ERA-735, Removal of Recovery Equipment, Rooms 221, 222, 223, Building 234-5

A project proposal for removal of hoods in these rooms is being prepared. The Manufacturing Department has requested management responsibility.

ERA-2731, Activate Task I, RMA Line Building 234-5

Design was begun and advanced to 2%, the work consisting of design scope and preliminary drawings.

ERE-482, Phase Comparison Relay 230 KV Loop

Neither design nor construction has begun. This work is a part of Program "X" and involves changing part of the protective relay system in each of the 230 KV Substation and the Midway Substation. Total cost of these changes is estimated at about $150,000.

2. Final Reporting

CG-187-E, Conversion of Unassigned Space for Radiochemistry Laboratory

Design had been completed previously; construction was completed and final acceptance made on October 31.

CA-406, Mechanical Development Building (Phase II)

On September 19, 1952 the drawings, specifications, and other data for bid assemblies were transmitted to A.E.C., Hanford Operations Office. The changes being acceptable, the project was closed out.

CG-503, Waste Storage Hutment 234-5 Building

All work has been completed, and the building is being used.

ER-6012, Hanford Works Standards Evaluation

The engineering request was closed out October 30, 1952.

ERR-478, Inter-plant Telephone System - Hanford Expansion Program

Scoping has been completed, and the Design Order funds are closed out.

3. Current Projects

CA-192, Biology Laboratory 108-F

Completion status remains at design 98%, construction 88%. This revised project proposal has been awaiting AEC authorization for about 8 months. More work cannot be done until additional funds can be authorized.

CG-349, Hot Semiworks

Both design and construction have been completed. The project was closed out on October 6; however, funds were left available for start-up work and probable alterations to the jet sampling system.

CA-362, Waste Removal and Recovery Facilities (TBP)

Design had been completed previously; construction progressed 2.4% to a total of 98.1%. Construction work was completed except clean-up items under SWP conditions on Tank Farms BX, BY, and T, plus some work in the BXR and TXR Areas. Since Minor Construction forces assumed the management of this project on September 22, there has been significant improvement in the quality and quantity of craft work. This was attributed to closer supervision and better planning by the craft foreman, since approximately the same number of people accomplished a great deal more work.

A detailed cost report and an estimate of indicated cost are being prepared by the main CPFF contractor. When these become available in early November, the fund requirements can be established. During the month, 104 as-built drawings were received from the Architect-Engineer, bringing the total to 1,068. The General Electric Design Section has supplied 179 as-builts.

CA-431-A, New Reactor 100-C Plant (Waterworks)

Design had been completed previously; construction progressed .5% to a total of 99.5%. As-built drawings were about 85% complete. The area has been cleared except for a few temporary construction buildings.

Acceptance tests have been completed except for three. Minor Construction forces have been issued a work order to clear the remaining punch list exceptions, beginning November 3, 1952. All buildings are being operated by Manufacturing Department.

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CA-431-B, New Reactor 100-C Plant (Reactor)

Both General Electric and Architect-Engineer design had been completed previously; construction advanced .2% to a total of 99.5%. An additional 63 General Electric as-built drawings were approved during the month, bringing the total of as-builts to 222. No Architect-Engineer as-built drawings have been received.

During final acceptance testing on the 105-C reactor, it was disclosed that the Ball Third Safety System required further development or modification. The principal change required was the fabrication of a bronze liner for the ball valves at the lower ends of the ball slots. The gas seal of these valves also needed improvement. The usual and expected difficulties were encountered in the final adjustment of relays and other elements of the electrical circuits and various components of the control system. The work remaining as of October 27 was assumed by Minor Construction forces. It is expected that all of these difficulties will be satisfactorily cleared and the 105-C facility turned over for start-up during the first week in November.

CG-433, 384 Steam Plant Addition

Design had been completed previously; construction progressed 4% to a total of 94%. Because of delayed deliveries of equipment required for the building, the construction contractor requested a time extension to December 13, 1952. A revised project proposal requesting a revision of the directive date to January 30, 1953 was submitted.

CG-438, Ball Third Safety System

Design had been completed previously; construction progressed .5% to a total of 14%. The schedule for shut-down of the 100-F Area reactor has been formally committed for November 17, 1952.

Hoppers and step plug units for the first two reactors have been received. A shipment of 30,000 lbs of boron steel balls is scheduled for arrival during the first week of November. Prefabrication of electrical work continued. Top-of-unit work is about 85% complete and should be completed well before shut-down time.

On October 27, a demonstration of the ball recovery system was held at White Bluffs. Simulated recovery of the balls from a unit was successful. The mechanism for test-dropping the balls is being modified to incorporate necessary design changes.

CG-482, Pile and Pile Water Plant Improvements

Design progressed 10% to a total of 85%; construction has not begun. Aluminum nozzle castings are being produced at a satisfactory rate. By the end of the month 650 approved, heat-treated castings had been shipped to the machining shop. No undue delays are expected.

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CG-483, Downcomer Repairs in 100-B, D, DR and H and Replacement in 100-F

Design had been completed previously; construction progressed 14% to a total of 25%. The fabricated AISI 502 angles which arrived on plant October 13, 1952 were found to have been overstressed in forming. The design of the 105-F replacement downcomer was revised to eliminate the use of these angles in areas of critical stress. Fabrication of the bottom section of the downcomer was completed on October 30, and the first applications of a protective coating were made on October 31, 1952.

CG-506, Repairs to the 107-B, D, F, DR, and H Retention Basins

Design progressed 26% to a total of 46%; construction remained at 5% complete. A final recommendation for repairs has been received from the consulting engineer (R. A. Moncrieff of Chas. T. Main Company). From this information the following repairs program has been established:

(1) Explore foundations to determine the extent of voids, and fill with grout.
(2) Construct expansion joints at the top and toe of sloping slabs, and fill with a thiokal base material.
(3) Waterproof all cracked gunite sloping basin slabs.
(4) Remove and replace filler material in existing expansion joints.

B. OTHER ASSIGNMENTS

CG-404, Primary Power Lines for Hanford Works Laboratory

Design had been completed previously; construction progressed 4% to a total of 87%. The contractors for this project have requested an extension of time from October 30 to December 1, 1952, because of difficulty in obtaining security clearances for employees. Approval of this request has been recommended to the AEC. Work on Project CG-451 (Extension of 300 Area Underground System) will be sufficiently advanced by early November for work to be resumed on the primary lines.

CG-419, Induction Heating Unit - Building 3732

Completion status remains at design 100%, construction 0%. The revised project proposal which extended the completion date to January 1, 1953 has been approved.

CG-420, CO_2 Bulk Storage Facilities

Design had been completed previously; construction progressed 19% to a total of 92%. Work in the 100-B Area was completed except for touch-up paint work. Electrical tie-ins are being made in the 100-F Area, and all piping work in this area was completed. Test work at 100-D Area has been delayed until the compressor can be repaired.

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CA-434, New Bio-Assay Laboratory

Completion status remains at design 100%, construction 0%. The sponsor has reviewed the scope for significant deletions and believes that the scope as originally outlined is the minimum allowable. A new project proposal is being prepared.

CA-441, Solvent Building

Design progressed 1% to a total of 31%; construction has not begun. A simplified scope has been worked out covering a minimum cost proposition. Drawings and cost estimates are being requested.

CG-442, X-Ray Machine 3745-A

Completion status remains at design 98%, construction 85%. A contract has been awarded and a Notice to Proceed has been issued for the additional shielding work. Construction is expected to begin in early November, after which the new vacuum pump and X-Ray tube will be installed.

CG-445, B-Y Telephone Exchange Additions and Changes

Design had been completed previously; construction progressed 14% to a total of 87%. Trunking equipment has been received and is scheduled for installation at the B-Y Exchange during November. The remaining material (addition to the toll test board) for this project is scheduled for delivery late in 1953. For this reason the project is being closed after installation of equipment on hand and a work order issued for installation of the test board.

CG-447, Portable Meteorological Mast

Design progressed 3% to a total of 95%; construction progressed 10% to a total of 75%. Every effort was made to complete this project by December 1; however, several personnel changes have caused delayed completion of design and development work. A revised project proposal is being prepared to request extension of completion date to April 1, 1953.

CG-451, Extension of 300 Area Underground Electrical Power Distribution System

Design had been completed previously; construction progressed 32% to a total of 38%. The contractor has requested an extension of contract completion date from October 30 to December 1, 1952.

CG-452, Meteorology Tower Elevator

Design had been completed previously; construction was begun October 27 and progressed to 2%. All materials are on the job site.

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CG-454, Spectrometer Shielding

Design completion status remained at 98%; construction progressed 9% to a total of 75%. Work is proceeding on the new step plug and test hole shield. Delivery of the tapered steel rods to be used for the collimating plugs is being expedited. Otherwise, progress on this project is satisfactory.

CA-455, Replace Two Elevated Water Tanks on 200-E Area

Design progressed 10% to a total of 85%; construction has not begun. Bid specifications have been forwarded to the AEC.

CA-473, 100-B Automatic Dial Telephone Exchange

Completion status remains at design 100%, construction 0%. Since it has been decided to combine this facility with the proposed K Area Telephone Exchange, this project may be closed immediately.

CG-477, Building 284-W Fifth Boiler Addition

Design progressed 3% to a total of 88%; construction progressed 12% to a total of 31%. All elements of final design have been submitted by the contractor for review at Hanford Works. About 75% of these drawings have been returned to the contractor with final comments. The contractor has submitted a set of acceptance tests for review and comments. Although it is evident that the new boiler will not be in service during the coming winter, it has been decided that no attempt should be made to pay a premium in order to expedite the schedule. This decision is based partly on the fact that the boiler manufacturer is suffering a strike. Installation of the de-aerating feed water heater has been delayed approximately three weeks because a vent condenser failed to pass the ASME code test during inspection.

CA-478, Area Fence and Minor Repairs Excess Material Warehouse-North Richland

Design had been completed previously; construction was revised downward because of inclusion of a truck loading ramp and a scrap storage slab. At the end of the month construction was 98% complete.

CA-479, Replacement of Docks and Outside Stairs - 700 Area Permanent Buildings

Design had been completed previously; construction progressed 37% to a total of 45%. Work on this project is considerably ahead of schedule.

CA-480, Remodeling 722-C Building for Office Equipment Repair

Design had been completed previously; construction progressed 44% to a total of 60%. It is now evident that the contractor will complete all

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work considerably before scheduled date of December 26, 1952.

CA-489, Positive Iron Accelerator

Completion status remains at design 100%, construction 0%. After approximately 7 months this project is still awaiting authorization by AEC.

CA-491, Metallurgy Laboratory, 300 Area

Design had been completed previously; construction progressed 28% to a total of 85%. The lump sum portion of this work is essentially complete. General Electric plant forces have been designated to install the remaining equipment.

CG-492, Experimental One-Tube Ink Facility

Design had been completed previously; construction progressed 35% to a total of 65%. The revised project proposal requesting a completion date of February 1, 1953 was approved by the A&B Committee and forwarded to the AEC. The problem of removing hydrogen from the bayonet tube has been resolved by addition of a hydrogen separator and vent line in the process piping. Procurement of additional material needed for this revised design has begun.

CG-493, Duct Level Safety Showers, Building 234-5

Completion status remains at design 100%, construction 0%. The latest estimated construction starting date is December 1, 1952.

CG-496, Recuplex Installation, 234-5 Building

Design progressed 14% to a total of 40%; construction has not begun. Since design funds will be exhausted in early December 1952, the project proposal is being revised to request additional design funds. A project construction estimate is being prepared and will be incorporated into a project proposal for submittal to the A&B Committee in December.

CA-497, New Substation Fences and Grounding of Existing Fences

Design had been completed previously; construction has not begun. Notice of Invitation to Bid was released by the AEC on October 16. Invitation to Bid was sent out October 27, with bids to be received November 12, 1952.

CA-500, Lubrication Pits, 1716-D and 1716-F

Design progressed 38% to a total of 98%. Final design and specifications are essentially complete. Invitations to Bid are prepared for issue in November.

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CG-501, Repair of 105-DR Effluent Line Junction with 107-DR

Completion status remains at design 100%, construction 50%. Modification #1 to the AEC Directive authorizing total funds of $51,000 has been received. Work on the west effluent line is scheduled to begin November 3, 1952.

CA-511, Completion of Minor Construction Fabrication Shops

Completion status remains at design 15%, construction 0%. This project proposal has been awaiting AEC authorization since August 25, 1952.

CA-514, 300 Area "X" Program

Design was about 6% complete; construction has not begun. The project proposal was reviewed by the A&B Committee on October 30 and was submitted to the AEC on the following day. The AEC has been requested to approve $20,000 for immediate detail design of the operations change house.

CA-516, Gable-Butte Railroad

Design was about 50% complete, construction has not begun. General Electric has been requested in the Directive to prepare final design and specifications. This work is being done toward an estimated completion date of December 1, 1952. Some material is being ordered by the AEC.

CA-517, Fire Protection Buildings 272 E and W

Design was about 30% complete. Since the AEC has requested the installation of a sprinkler system in the 272-E Building, the project proposal is being rescoped on that basis.

CG-519, Replacement of 100-D Reactor Effluent Line

Completion status remains at design 20%, construction 0%. The project proposal requesting $219,000 is awaiting AEC authorization.

CA-522, Additions to Kadlec Hospital

Completion status remains at design 20%, construction 0%. Additional information and data are being prepared for this project proposal which will request final design funds only.

CA-528, 300 Area Parking Lot Improvements

Design was 25% complete; construction has not begun. The project proposal for a total estimated cost of $23,000 has been submitted to the A&B Sub-committee.

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CA-529, Personnel Meter Gatehouse Facility Improvements

Design was 20% complete; construction has not begun. A project proposal for total estimated project cost of $33,000 was submitted to the A&B Sub-committee.

IR-96, Replacement of Air Lock Doors, 234-5 Building

Completion status remains at design 100%, construction 38%. Work was not resumed because of pressure of more urgent work. Further schedules are indefinite.

IR-101, Retention Basin Sumps 100-B and F Areas

Design was 100% complete; construction was 75% complete. Minor Construction forces installed the second sump in the 107-F basin on October 28 through 31, so that the new sump could be utilized in cleaning the basin before the Ball 3X Program.

IR-113, Pile Technology Metallurgical Laboratory Alterations-234-5 Building

Completion status remains at design 100%, construction 97%. The only remaining work is the installation of metal doors which are promised for shipment on December 16, 1952. An earlier shipping date has been requested of the vendor.

IR-116, Combined Civil Defense and Plant Disaster Control Center

Completion status remains at design 5%, construction 0%. The revised informal request letter, proposing the design of a mobile defense center, is awaiting approval by the AEC.

IR-122, Facilities for Contamination Control - Shipping Casks

Both design and construction for this project have been completed. Since the last exception cleared after Directive completion date, request for an extension of time is being routed for signatures.

IR-128, Remote Supervisory Control 100 Area Water Plants

Design progressed 2% to a total of 7%; construction has not begun. Preliminary design is progressing for the 190-B, D, DR, F, and H buildings. Scoping of other phases of the work is also being done.

IR-133, Water Quality Laboratory, 108-B

Design was completed; construction work began on October 13 and progressed to 4% complete.

IR-134, Additional Facilities in 189-D Building

Design progressed 25% to completion; construction progressed 16% to a total of 18%. The work is scheduled for completion during December, 1952.

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The following studies and engineering requests, involving preparatory work and scoping of future projects, were active during the month:

ER-A-661, Central Distribution Headquarters

Completion status remained at design 20%, construction 0%. The project proposal is still being prepared. The AEC has advised that construction funds for this work may possibly be obtained from Program "X" funds.

ER-A-663, Pile Technology Test and Storage Building

Design completion status remained at 30%, with work continuing on preliminary design and scoping. Available funds permit only limited work.

ER-A-671, Crushed Rock and Oil Covering, 700 Area

Design completion status remained at 25%. Completed work comprises preliminary scoping and design. This information is to be reviewed with the sponsor.

ER-A-681, Roads and Walks, 700 Area

Design completion status remained at 25%. Preliminary scoping and design information is to be reviewed with the sponsor.

ER-A-686, Painting High Tanks - 105-B and 105-F

Design completion status remained at 25%. The project proposal is being routed for signatures. Total estimated project cost is $42,000, with work to be performed by Minor Construction forces.

ER-A-706, Area First Aid Buildings

Design completion status remained at 25%. A revised project proposal is being prepared, for Project CA-431, to include this facility for 100-B Area. A 300 Area facility is being included as a portion of the new Administration Building. Facilities for 100-D and F Areas are being held pending availability of construction funds.

ER-A-709, Replacement of Fire and Sanitary Water Tank, 100-D

Design was 16% complete. Scoping is progressing.

ER-A-712 (RCD-4), Richland Air Raid Shelter Study

Design was about 10% complete. The informal request dated March 21, 1952, is still awaiting authorization.

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ER-A-713 (Job 021), Substation Service Building 1100-300 Area

Design had been completed previously; construction was begun and advanced to 8%. The work is scheduled for completion on or before December 8, 1952.

ER-A-719, Administration Building, 300 Area

Design completion status remained at 15%. Scoping and preliminary design has been completed. Design and construction funds are included in the project proposal for 300 Area X Program expansion.

ER-A-720, Operations Change House, 300 Area

Design completion status remained at 20%. Scoping and preliminary design has been completed. Design and construction funds are included in the project proposal for 300 Area X Program expansion. Final design is to be done by GE in order to expedite this much-needed facility.

ER-A-721, Additions to 202-S (PR Operating Area)

Design completion status remained at 20%. Manufacturing Department is withholding approval of this informal request, pending further review.

ER-A-724, Soil Science Laboratory Facilities

Design was 21% complete. Scoping and preparation of the project proposal are continuing. The justification for several phases is being studied.

ER-A-725, Particle Problem Animal Exposure Equipment

Design was about 5% complete. A scope meeting has been held, but further work is awaiting additional detail requirements and operating criteria.

ER-A-727, 313 Building Roof Repair or Replacement

Design progressed 30% to a total of 80%. Funds for this work have been included in the project proposal for the 300 Area X Program expansion.

ER-A-728, Graphite Production and Storage Facility

Design progressed 5% to a total of 15%; construction progressed to 1%. A contract was negotiated for the fabrication and erection of the facility shell. The architect-engineer is proceeding with the overall facility design. Site work is being done.

ER-A-731, 300 Area Utilities Study

Design progressed 10% to a total of 60%. A recommendation report outlining 300 Area utility requirements was essentially completed. Further engineering work is to be performed pending approval of funds from the 300 Area X Program project proposal.

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ER-A-733, Asbestos Shakes - 100-B, D, and F Buildings

Design progressed 45% to a total of 50%. The project proposal for a total estimated cost of $26,600 is being prepared.

ER-A-1182, P-13 Pressure Assembly Removal

The project proposal was returned again from the A&B Committee with the following recommendations:

1. The assembly shall be left on the X-level after removal, and removed from the building if and when required.
2. Estimated costs for removing the assembly from the building and restoring the building should not be included in the proposal.

These comments were forwarded to the sponsor.

ER-A-1185, Car Puller and Car Shake-out

Design was about 10% complete. The Manufacturing Department has determined to proceed with the project as scoped. Further study of justification is being made.

ER-A-1186, Revisions to Charge Machines in the 100 Areas and Installation of a Third Charging Machine - B, D, F, DR, and H Areas

The final draft of the project proposal is being routed for signatures.

ER-A-1187, Metal Examination Facility - 105-C

Design completion status remained at 70%. The project proposal is being prepared.

ER-A-1188, Xenon Generator

Design progressed 5% to a total of 10%. The design criteria and preliminary drawings have been completed. The project proposal is being prepared.

ER-A-1191, Storage Basin Roof Reinforcement

Work has been stopped at the request of the Reactor Section, since the carriage spacers cannot be justified. Strengthening of the transfer area roofs is to be accomplished on a work order basis.

ER-A-1192, Vertical Rod Test Tower

Design was about 5% complete. The rough draft of the project proposal is being circulated for approval signatures.

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ER-A-3096, 314 Building Revision for Canning Development

The project proposal was reviewed by the A&B Subcommittee on October 27, 1952. Since the work is related to the 300 Area Expansion Program, the Subcommittee referred the project proposal to the A&B Committee for review at its November meeting.

ER-A-6016, Equipment Price Standardization

At the request of the Secretary of the Standards Committee, this order is being held open pending action on the final report submitted to the Standards Committee.

ER-2718, Fire Protection - 200 East and West Spare Parts Warehouse

Completion status remained at design 50%, construction 0%. A project proposal for $21,000 has been submitted.

ER-2720, Fire Protection Equipment - Building 234-5 Filter Rooms

Completion status remained at design 20%, construction 0%. At the request of the sponsor, work was suspended. Ultimate cancellation is expected.

ER-2723, Steel Handling System - 272-W

Completion status remained at design 20%, construction 0%. At the request of the sponsor, work was delayed, pending a change in scope.

ER-2724, Insulation of Powder Handling Facilities - 224-U

The informal request was cancelled, since the work is to be done on Project C-361, Metal Conversion Facilities. Manufacturing Department has requested copies of the informal request and the drawings.

ER-2726, Adaption of 200-W Laundry Building to Branch File Use

Completion status remained at design 20%, construction 0%. The project proposal was unacceptable to the Technical Services Unit because of their belief that the Separations Section should accept a larger share of the cost. Further work awaits reconciliation of these budget difficulties.

ER-2727, 235 Building Laboratory Revisions

Design progressed 5% to a total of 25%. Preliminary design has been completed. Since insufficient funds for construction are in the approved fiscal budget, the project propcsal is being written to request design funds only.

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ER-2728, Replace Five Wooden Elevated Water Tanks 200 E & W

Design progressed 5% to a total of 10%. Preparation of a project proposal for $182,000 in design funds only was virtually completed during October.

ER-E-479, Hanford Works Official Telephone Exchange

Design progressed 5% to a total of 15%. The project proposal for a total estimated cost of $550,000 is being prepared for submittal in early November, 1952.

ER-E-480 (Job 024), Storage Building Addition to 3730 Building

Completion status remained at design 100%, construction 0%. This work is being negotiated with the contractor for Projects CG-404 and CG-451.

ER-E-481 (Job 026), Conduit Runs from Pit No. 3 to Pole No. 48 - 300 Area

Completion status remained at design 100%, construction 0%. This work is also being negotiated with the contractor for Projects CG-404 and CG-451.

Job No. 022, Painting West High Tank - 300 Area

Completion status remained at design 100%, construction 0%. The contract has been awarded. Work is to begin at an early date.

DO-100325, Activated Silica-Alum Preparation Facilities, 183-D

Completion status remained at design 10%, construction 0%. Efforts are being made to obtain suspense codes for this project. Scope is not definite, with work to consist of one of the following:

1. Install tank, unloading pump, feed pump, and necessary piping to handle activated silica supplied by truck from 100-C, at a cost of approximately $25,000.
2. Install temporary facilities including tanks, pumps, and piping to prepare activated silica, at a cost of approximately $74,000.

C. RELATED SERVICES

1. Project Services

The heavy drafting workload continued with Projects CA-512-R and CA-513 being the largest jobs. Additional drafting facilities were obtained in the 101 Building, 3000 Area, and 12 drafting personnel are working with Design engineers on scope work for Project CA-513. Total drafting production was 304 new drawings, 109 charts and graphs, and 121 revisions. The drafting room average was 6.1 man-days per drawing.

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Reproduction output increased from about 320,000 square feet in September to about 343,000 square feet in October. The largest single order processed during October was 3,998 prints on Project CA-512-R. There were two other orders of over 1,000 prints each. The manual of operations for Blueprint Reproduction was published. On October 17, 1952, by agreement between AEC and G.E. Security officials, the Blueprint Reproduction group discontinued accountability for all material classified as "Restricted".

Of the 54 estimates scheduled, the Estimating Services group completed 36, and also completed the project proposal estimate for 300 Area expansion and the fee estimate for 200 Area expansion. The Field Services group completed preliminary surveys for Purex design and for double tracking of "D" line railroad. This group is beginning preliminary survey for the addition to Columbia High School.

The Project Control group completed the final draft of the Construction Budget Midyear Review and furnished the Midyear Review Manpower Budget to Engineering Accounting. This group is also preparing extensive information and chart material for numerous special assignments.

The History group issued 7 histories during the month.

2. Inspection Services

The Inspection Services Unit completed both sessions of its orientation and training program for inspectors. Results from the first program were so favorable that the basic program was repeated. The participants were enthusiastic about immediate improvement in morale as well as having the opportunity to review ways of providing more efficient inspection service.

During the month the local liaison personnel spent considerable time in improving contacts with purchasing agencies, Design Section, and engineering groups. Liaison personnel are now attending weekly review meetings with G.E. Design Units, and they are also working toward more detailed reviews of requisitions and attachments. This latter activity has particular reference toward the contractors' procurement for 100-K Area.

The following is a resume of inspection activities during the month.

Item	Number
Open requisitions requiring inspection	103
Orders assigned to inspection	102
New Orders received	31
Orders completed	18
Sub-vendor orders assigned to inspectors	9
Total requisitions for Program "X" transmitted	178
Total orders placed for Program "X"	35

(NOTE--Further details of inspection work have been covered within Part "C" of the Summary.)

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C. Related Services (Cont'd.)

2. Inspection Services

Arrangements were completed to transfer an Engineering Inspector from the Inspection Services Unit to the Minor Construction Management Unit, the actual transfer to be effective November 10, 1952.

D. CRAFT LABOR

Following the assignment of construction work on CG-362 (TBP) to Minor Construction craftsmen showed an appreciable increase of efficiency. This was attributed to closer supervision and more precise assignments of work. There was a marked decrease in voluntary terminations of CPFF contractors' personnel. The percentage dropped from 4.2% in September to 1.4% in October.

Two work stoppages occurred during the month. The first, involving about 165 electricians, began on October 1. It resulted from the Union's demand that the local area agreement supersede the agreement at Hanford Works, and from the Company's refusal to ignore the standing agreement. During this stoppage, the final work at 105-C was seriously delayed. The electricians returned to work October 7, 1952 pending the outcome of a meeting in Washington D. C. from October 9 to October 11. Negotiations were returned to the local level where agreement was reached on October 18.

The second work stoppage occurred October 20 when 21 sheet metal workers protested an assignment to ironworkers. The disputed work comprised the installation of trim on metal siding and the hanging of metal lath for plaster ceilings. Work was resumed on October 21 after understandings were reached by the disputants.

A jurisdictional dispute over the handling of salvage lumber occurred in late October at 100-K Area between carpenters and laborers. The two crafts later made a satisfactory division of work, namely, the laborers to handle material to be sent to the service yard, and the carpenters to handle material which they are going to reuse immediately.

Negotiations by boilermakers for the Seven Western States 1952 Agreement were concluded during the month. The new contract provides increases in wages, subsistence allowance, and travel allowance. Provision for special conditions on large government projects remains a part of the Agreement.

During recent negotiations on the "Master Agreement" for Hanford Works most of the basic crafts including laborers, bricklayers, painters, cement-masons, teamsters, operating engineers, ironworkers, roofers, blacksmiths, and lathers have signed the basic Agreement or are committed to do so. The signing of the carpenters is being delayed by controversial issues which they introduced into negotiations.

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D. Craft Labor (Cont'd.)

Electricians have signed a Hanford Works Addendum to the National Electrical Contractors Associations Area Agreement which applies to all public or private work either inside or outside the barricade. The contract has an anniversary date of July 1, 1952.

Plumbers have signed a Hanford Works Addendum to the Washington State Agreement which applies to all work performed behind the barricade, but not necessarily to work in Richland and North Richland.

Sheet metal workers have heard a recommendation from the Davis Panel that the differential between the Spokane area and local rates be reduced to 2-1/2 cents and that the vacation plans be the same. However, the Sheet metal workers have indicated that they will seek an addendum to their standard agreement.

Boilermakers are requesting authority from their International to appoint a committee to negotiate a Hanford Works Addendum to the Seven Western States Agreement.

Asbestos workers are participating in initial discussions. They may sign some form of letter agreement to formalize the understandings at Hanford Works.

Machinists have placed their contract demands before the Davis Panel. The machinists want assurance that their rate will increase according to the rate of millwrights. They also demand double time for all overtime. A health and welfare plan has been agreed upon.

In all of the negotiations with electricians, plumbers, asbestos workers, sheet metal workers, and boilermakers, isolation pay has been a major consideration. The crafts have either accepted or are being offered isolation pay of $4 per day. Other demands center on wage increases, payment for overtime, and other special allowances.

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MEDICAL DEPARTMENT

OCTOBER 1952

General

Personnel Changes

The roll decreased from 274 to 263. It was 274 a year ago.

Visits

Dr. W. D. Norwood, O. E. Bakko, E. J. Quigley, H. Turner and R. Swift attended the annual meeting of the Washington State Hospital Association held in Wenatchee on October 22nd and 23rd.

Dr. M. L. Weitz attended the Oregon State Medical Society meeting, October 8-10.

Mrs. Helen Turner attended the Nursing Service Institute in San Francisco sponsored by the American Hospital Association.

Dr. Sachs attended the American Public Health Association meeting at Cleveland.

The A.E.C. General Information Meeting for Directors of Biology and Medicine was held in Richland on October 13th and 14th. Industrial physicians from the various A.E.C. installations met on October 15th at Kadlec Hospital.

Industrial Medicine

Medical examinations increased from 2775 to 3809. The number of General Electric examinations was decreased in order to cover an increase of 1365 contractor examinations. Dispensary treatments also increased from 6980 to 8042. General Electric employees sustained 1 major and 1 sub-major injury and contractor employees sustained 3 majors and 5 sub-majors. Sickness absenteeism was 1.86% for October as compared to 1.41% for September. On October 3rd approximately 150 employees were exposed to chlorine gas fumes. 50 of these were General Electric employees and 13 cases were hospitalized. All effects were reversible and no residual effects are anticipated.

Kadlec Hospital

The average daily census increased from 78.2 to 86.6 as compared to 87.0 a year ago. This represents an occupancy percentage of 79.4 broken down as follows: Mixed services (Medical, Surgical, Pediatrics) 82.6; Obstetrical Service 66.2. Nursing hours per patient per day were 3.30 for the mixed services.

Public Health

The incidence of poliomyelitis subsided with the reporting of only 1 additional case during the month. At the present time our incidence is 30% below that experienced by the State of Washington. Mumps remained a disease of high incidence. Dr. Sachs was made President-Elect of the Washington State Public Health Association.

Costs-September

Medical Department costs before assessments to other departments were as follows:

	August	Sept.	Sept. Budget
Industrial Medicine (Oper.)	$37,200	$38,082	$38,083
Public Health (Oper.)	11,147	11,582	12,822
Kadlec Hospital (Net)	25,707	24,369	27,605
Hospital Expense Credits	2,732	2,503	2,584
Sub-total-Medical Department (Oper.)	76,786	76,536	81,094
Construction Medical (Industrial and Public Health)	11,481	11,143	15,357
Total-Operations & Construction	$88,267	$87,679	$96,451

119785

Costs-September (Continued)

The net cost of operating the Medical Department before charges were made to other departments for services rendered was $87,679, a decrease of $588 when compared to prior month. Average adult patient day census in the hospital was 78.3 in September as compared to 73.3 in August resulting in an increase of approximately $3,700 in revenue. Expenses increased approximately $3,200 due primarily to the proposed salary increase of 4.65% effective September 15th, for which an accrual was made.

1197852

MEDICAL DEPARTMENT

OCTOBER 1952

Industrial Medical Section

Medical examinations increased from 2775 in September to 3809. The number of General Electric examinations was decreased in order to cover an increase of 1365 contractor examinations. Dispensary treatments increased also from 6980 to 8042, chiefly as a result of General Electric employee visits. General Electric employees sustained 1 major injury and 1 sub-major. Contractor employees sustained 3 majors and 5 sub-majors. The mobile First Aid station began service in the 100-K area on 10-23-52 and the 100-C area First Aid station discontinued service on 10-30-52. Industrial nursing personnel was reduced by 4 nurses during the month.

On October 3rd in the 100-C area 105 building the sanitary water line was injected with chlorine gas in such a manner that it escaped into the building, exposing approximately 150 employees, 54 were General Electric employees, to chlorine gas fumes. The exposed cases were all seen in a relatively short time by industrial physicians in 100-C area and at Kadlec Hospital. A total of 13 cases were hospitalized for treatment and observation. All effects were reversible and no residual effects are anticipated in any of these employees.

Helen Elrod, R.N. of the California Research and Development Laboratories, Livermore, California, was a visitor of the section for 3 days during the month.

Dr. M. L. Weitz attended the Sommer Memorial Lectures in Portland given in coordination with the Oregon State Medical Society meeting October 8-10. The papers heard at this meeting, including those of Dr. Rutherford T. Johnstone on industrial medicine, were reviewed at the Industrial Physicians' Scientific Meeting.

The A.E.C. general information meeting for Directors of Biology and Medicine was held in Richland on October 13th and 14th. Following this, industrial physicians from A.E.C. installations held a meeting on October 15th with Dr. W. D. Norwood serving as Chairman. The subjects of discussion included skin decontamination, radiation exposure and absenteeism.

The Chemical Hazards Committee met on October 31st. The chlorine gas incident was discussed and carbon monoxide hazards reviewed. The nitrogen oxide fume hazard in the 300 Area was also discussed and plans made for study and evaluation of this problem.

The Health Activities Committee met on October 16th and the health topic on "Add Life to Your Years" was presented. Absenteeism study and policy was discussed in some detail. The plant sickness absenteeism was 1.86% for October as compared with 1.41% for September.

Gross costs for Operations for September amounted to $38,732 as compared to $38,170 in August, an increase of $562. This is detailed as follows:

1197853

Industrial Medical Section (Continued)

Costs-Operations (Continued)	September	August	Increase (Decrease)
Salaries	$ 28,839	$ 28,738	$ 101
Continuity of Service	2,884	2,874	10
Laundry	277	275	2
Utilities, Transportation, Maintenance	3,278	3,235	43
Supply and Other	3,454	3,048	406
Total gross costs	$ 38,732	$ 38,170	$ 562
Less: Revenue	650	970	(320)
Expense Credits	4,038	4,702	(664)
Net Cost of Operations	$ 34,044	$ 32,498	$ 1,546

As detailed above the greater portion of the increased costs is represented by "Supply and Other" and is the result of replenishing medical supplies through store orders.

Industrial Medical-Construction

Gross costs reduced $434 as compared to prior month, the detail of which is as follows:

	September	August	Increase (Decrease)
Salaries	$ 8,255	$ 8,930	$ (675)
Continuity of Service	826	893	(67)
Laundry	57	57	-0-
Utilities, Transportation, Maintenance	53	94	(41)
Supplies and Other	1,294	945	349
Total gross costs	$ 10,485	$ 10,919	$ (434)

The decreased salary cost was brought about primarily by a reduction in nursing personnel. One nurse was transferred to the hospital. The increased supplies were used in the x-ray section and represent increased use of film on termination and pre-employment examinations.

1197854

MEDICAL DEPARTMENT

OCTOBER 1952

Industrial Medical Section (Continued)			
Physical Examinations	September	October	Year to Date
Operations			
Pre-employment	129	99	1237
Rehire	15	23	184
Annual	441	247	3014
Interim	249	223	1186
A. E. C.	7	12	431
Re-examination and rechecks	100	81	880
Termination	214	139	1693
Sub-total	1155	824	8625
Contractors			
Pre-employment	402	954	2542
Rehire	78	80	1526
Recheck	18	150	564
Termination & Transfer	1122	1779	8471
Interim	0	22	96
Sub-total	1620	2985	13199
Total Physical Examinations	2775	3809	21824
Laboratory Examinations			
Clinical Laboratory			
Government	36	70	1988
Pre-employment, Termination, Transfer	4576	7181	36842
Annual	2284	1342	16867
Recheck (Area)	1552	1329	7597
First Aid	18	13	337
Clinic	302	275	4620
Hospital	4507	4860	45096
Public Health	0	2	142
Total	13275	15072	113489
X-Ray			
Government	6	10	351
Pre-employment, Termination, Transfer	652	1216	5530
Annual	461	259	3184
First Aid	154	386	2383
Clinic	311	279	2823
Hospital	291	331	3227
Public Health	10	3	53
Total	1885	2484	17551
Electrocardiographs			
Industrial	36	44	355
Clinic	6	2	96
Hospital	35	41	389
Total	77	87	840

1197855

MEDICAL DEPARTMENT

OCTOBER 1952

Industrial Medical Section (Continued)	September	October	Year to Date
First Aid Treatments			
Operations			
New Occupational Cases	369	446	4116
Occupational Case Retreatments	1234	1445	14092
Non-occupational Treatments	2684	3361	29543
Sub-total	4287	5252	47751
Construction			
New Occupational Cases	427	595	7118
Occupational Case Retreatments	1784	1749	27584
Non-occupational Treatments	435	413	7742
Sub-total	2646	2757	42444
Facility Operators	47	33	392
Total First Aid Treatments	6980	8042	90587
Major Injuries			
General Electric	2	1	14
Contractors	2	3	127
Total	4	4	141
Sub-major Injuries			
General Electric	2	1	20
Contractors	3	5	105
Total	5	6	125
Absenteeism Investigation			
Total No. Calls Requested	3	14	104
Total No. Calls Made	2	14	103
No. absent due to illness in family	0	1	2
No. not at home when call was made	0	4	21

1197856

MEDICAL DEPARTMENT

OCTOBER 1952

Hospital Section

The Medical Department's roll decreased from 274 to 263.

The average daily adult census increased from 78.2 to 86.6, as compared to 87.0 a year ago. This represents an occupancy percentage of 79.4, broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) 82.6; Obstetrical Service 66.2. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service	58	85
Obstetrical Service	7	25
Total Adult	70	102

The average daily newborn census increased from 12.7 to 15.3, as compared to 12.9 a year ago.

Nursing hours per patient per day:

Medical, Surgical, Pediatrics	3.30
Obstetrical	3.76
Newborn	2.35

The ratio of in-patient hospital employees to patients (excluding newborn) for the month of September was 2.14. When newborn infants are included, the ratio is 1.84.

The net expense for the operation of Kadlec Hospital for September was $24,369, as compared to $25,707 for August. Summary is as follows:

Kadlec Hospital net expense $24,369.
This is a decrease of $1,338 from August due primarily to increased patient census which resulted in greater revenue than the expenses which also increased. Revenue increased $3,686, costs increased $2,119 and expense credits were reduced $229.

The annual meeting of the Washington State Hospital Association was held in Wenatchee on October 22nd and 23rd. Dr. W. D. Norwood, Mr. O. E. Bakko, Mr. E. J. Quigley, Mrs. H. Turner and Miss R. Swift attended all or part of this meeting.

Mrs. Helen Turner, Chief Nurse, attended a Nursing Service Institute in San Francisco, California. This Institute was sponsored by the American Hospital Association.

1197857

MEDICAL DEPARTMENT

OCTOBER 1952

Hospital Section (Continued)	September	October	Year to Date
Kadlec Hospital			
Average Daily Adult Census	78.2	86.6	82.7
Medical	24.2	30.2	26.5
Surgical	29.8	30.2	31.0
Pediatrics	11.0	12.3	12.2
Mixed	65.0	72.7	69.7
Obstetrical	13.2	13.9	13.0
Average Daily Newborn Census	12.7	15.3	12.6
Maximum Daily Census:			
Mixed Services	82	85	95
Obstetrical	22	25	25
Total Adult Census	99	102	110
Minimum Daily Census:			
Mixed Services	39	58	39
Obstetrical Service	6	7	6
Total Adult Census	45	70	45
Admissions: Adults	555	564	5445
Discharges: Adults	498	583	5434
Newborn	81	96	839
Patient Days: Adult	2345	2684	25229
Newborn	381	473	3838
Total	2726	3157	29067
Average Length of Stay: Adults	4.7	4.6	4.6
Medical	5.0	4.3	4.5
Surgical	4.7	5.0	4.7
Pediatrics	4.8	5.2	4.7
Mixed	4.8	4.7	4.7
Obstetrical	4.1	4.1	4.2
Newborn	4.7	4.9	4.6
Occupancy Percentage: Adults	71.7	79.4	75.9
Medical	65.4	81.6	71.6
Surgical	93.1	94.4	95.9
Pediatrics	57.9	64.7	64.2
Mixed	73.7	82.6	79.2
Obstetrical	62.9	66.2	61.9
Newborn	48.8	58.8	48.5
(Occupancy Percentage based on 109 adult beds and 26 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	3.30		
Obstetrics	3.76		
Newborn	2.35		
Avg. No. Employees per Patient (excluding newborn)	2.14		
Operations: Major	72	88	819
Minor	87	75	858
E.E.N.T.	54	41	588
Dental	1	0	1

1197858

MEDICAL DEPARTMENT

OCTOBER 1952

Hospital Section (Continued)	September	October	Year to Date
Kadlec Hospital (Continued)			
Births: Live	95	87	840
Still	3	1	18
Deaths	6	8	57
Hospital Net Death Rate	.69	.44	.43
Net Autopsy Rate	83.3	25.0	57.9
Discharged against advice	0	1	8
One Day Cases	97	105	1153
Admission Sources:			
Richland	74.1	81.6	77.0
North Richland	13.3	7.9	11.1
Other	12.6	10.5	11.9
Admissions by Employment:			
General Electric	72.1	75.4	72.2
Government	3.2	3.9	2.6
Facility	4.9	4.8	6.1
Contractors	10.8	8.9	12.3
Schools	1.6	1.4	1.6
Military	.7	.5	.8
Others	6.7	5.1	4.4
Hospital Outpatients Treated	432	426	4457
Physical Therapy Treatments			
Clinic	221	355	2456
Hospital	181	202	1436
Industrial: Plant	141	165	2063
Personal	1	1	48
Total	544	723	6003
Pharmacy			
No. of Prescriptions Filled	2958	3301	30927
No. of Store Orders Filled	651	582	6794
Patient Meals			
Regulars	3753	4528	39978
Children under 8	584	495	5555
Specials	1197	1194	13059
Lights	0	0	29
Softs	769	904	8873
Tonsils	90	53	1049
Liquids	163	185	1800
Surgical Liquids	128	107	974
Total	6684	7466	71317
Cafeteria Meals			
Noon	2062	2031	19052
Night	252	299	2617
Total	2314	2330	21669

1197859

MEDICAL DEPARTMENT

OCTOBER 1952

Public Health Section

General

The incidence of poliomyelitis subsided with the reporting of only one additional case. At the present time, our incidence is 30% below that experienced by the State of Washington. The rate per 100,000 for the State of Washington was approximately 45. The rate for Richland and North Richland combined amounted to about 35 per 100,000 population.

Meningitis cases reported were of the influenza type. Investigation did not realize any correlation between the two cases.

Mumps remained a disease of high incidence. It is expected that the incidence of mumps will remain at the high level. It is anticipated that we will also have an increase in the number of cases of chickenpox in the community.

The agreement with the University of Oregon School of Nursing for field training of public health nurses in this area has been completed. We now have one candidate who will complete her work next month. The University of Washington School of Nursing shows interest in assigning students to our unit for field training.

The health officer attended the American Public Health Association meeting at Cleveland. He also was honored by being made President-Elect of the Washington State Public Health Association for 1954.

Dr. C. Don Platner held a clinic for the children in the handicapped room at the Marcus-Whitman school.

There was a marked increase in the number of behavior problems of children referred to Social Service Counselors. Most of these referrals came either from the school or from parents who had received help with their own children.

Counseling focused on improving the employee's adjustment to his job continued to be a growing area of interest to the Counselors, with 10 people definitely fitting into this category.

Routine inspections of the milk supply during October consisted of inspecting 39 dairy farms. Fifteen pasteurized samples were examined by the bacteriological laboratory. Results showed all to have been properly pasteurized. Bacteria and coliform counts were satisfactory. Resazurin results of milk producers we inspected were satisfactory with the exception of four.

Sanitary land fills in Richland and North Richland were found to be operating in a satisfactory manner. Bath houses in North Richland are being adequately cleaned; however, walls and ceilings are in need of repainting.

1197860

Public Health Section

General (Continued)

Results of routine restaurant inspections revealed most to be in a sanitary condition. Three were warned of degrading unless improvement is shown. Violations consisted mostly of improper cleaning of equipment and utensils. It is being planned to regrade all restaurants the first of January when new permits are issued. Bakeries inspected showed improvement over preceding month.

Bacteriological results of water and sewage samples indicate an acceptable standard.

It was recommended that pit privies be utilized instead of the present box and can system in the construction areas. A cleaning and maintenance system was outlined for the privies. Proper methods of handling and cleaning of water barrels was also outlined.

1197861

MEDICAL DEPARTMENT

OCTOBER 1952

Public Health Section (Continued)	September	October	Year to Date
Education			
Pamphlets distributed	10,435	13,986	155,570
News Releases	12	6	48
Staff Meetings	0	2	13
Classes	16	6	82
Attendance	240	23	1,464
Lectures & Talks	14	4	83
Attendance	332	318	2,801
Films Shown	11	7	136
Attendance	285	225	6,814
Community Conferences & Meetings	41	38	317
Radio Broadcasts	3	6	23
Immunizations			
Diphtheria	10	9	178
Diphtheria Booster	39	13	699
Tetanus	10	9	375
Tetanus Booster	39	55	720
Pertussis	10	9	80
Pertussis Booster	39	5	282
Smallpox	48	56	281
Smallpox Revaccination	29	34	1,551
Tuberculin Test	17	0	22
Typhoid	0	0	12
Typhoid Booster	0	0	4
Rocky Mountain Spotted Fever	0	0	2
Immune Globulin	11	6	112
Other	0	0	7
Social Service			
Cases carried over	104	97	822
Cases admitted	18	15	186
Cases closed	25	35	179
Remaining case load	97	77	829
Activities:			
Home Visits	18	15	105
Office Interviews	236	279	2,499
Conferences	55	59	601
Meetings	12	7	68
Sanitation			
Inspections made	154	129	1,541
Conferences held	24	26	329

1197862

MEDICAL DEPARTMENT

OCTOBER 1952

Public Health Section (Continued)	September	October	Year To Date
Bacteriological Laboratory			
Treated Water Samples	219	209	2,002
Milk Samples (Inc. cream & ice cream)	54	25	231
Other bacteriological tests	320	331	2,593
Total	593	565	4,826
Communicable Diseases			
Amoebic Dysentary	0	0	4
Chickenpox	0	8	110
Erysipelas	0	0	1
Food Poisoning	2	0	2
German Measles	8	6	594
Gonorrhea	6	1	23
Impetigo	1	0	5
Influenza (U.R.I.)	0	1	2
Infectious Mononucleosis	0	1	4
Malaria	1	0	1
Measles	0	2	15
Meningitis	0	2	2
Mumps	38	37	441
Pediculosis	0	0	1
Pinkeye	0	2	26
Poliomyelitis	7	1	9
Rheumatic Fever	0	0	2
Ringworm	0	1	13
Roseola	0	0	2
Scabies	0	0	1
Scarlet Fever	0	2	33
Thrush	0	0	1
Tuberculosis	0	0	6
Vincent's Infection	0	2	2
Whooping Cough	0	0	2
Total	63	66	1,302
Total No. Nursing Field Visits	585	562	8,275
Total No. Nursing Office Visits	76	148	1,337

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L DEPARTMENT PERSONNEL SUMMARY

October 1952

Orderly & Am.Dr	Tech.-Clin.Lab.	Tech.-X-Ray	Tech.-Bact.Lab.	Tech.-Phy.Ther.	Secretary	Steno-Typist	Office Mach.Opr	Telephone Opr.	General Clerk	Pharmacist	Dietitian	Cook	Kitchen Worker	Soc.Serv.Couns.	Sanitarian	Health Educator	Janitors	Records Supv.	Adm.&Assistant	Others	T O T A L
					2	1		3	4									1	2	1	18.0
				1		1	1		12.4								4.4				30.3
4	8	3	2	1		4			10.5	3	2	5	11				7			7	151.5
					1	1			1.1					3	2	1	.6				18.7
	1	1							7								.7				13.4
																	.3				1.3
	1								.2												1.4
	1								.3												4.5
	1								.2												4.4
	1								.3												1.5
																					3.2
	.2								.3												1.8
	1								.4												8.1
																					1.0
	4								.3												2.9
																					1.0
4	11	4	2	2	3	7	1	3	37	3	2	5	11	3	2	1	13	1	2	8	263

nurse

Number of employees on roll
Beginning of month 274
End of month 263
Net decrease 11

RADIOLOGICAL SCIENCES DEPARTMENT

OCTOBER 1952

Summary

Four Class I radiation incidents and one Class II incident were reported. In no case was the exposure of sufficient degree to cause concern.

There were additional losses of personnel despite forecast requirements in the contrary direction. In some areas of activity, a critical shortage of manpower resulted.

In general monitoring, the most noteworthy incident was the eastward movement of ground water under the Separations areas, due to the loading of the ground water mound by the Redox process. This movement, which may eventually be alleviated by some recent novel proposals for recycling, may affect disposal practices.

In research and development, the investigations proceeded satisfactorily. Completed was a study of the emission of soft gamma and X-radiation from metal pieces, which can now be applied to a revision of handling practices.

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Radiological Sciences Department

RADIOLOGICAL SCIENCES DEPARTMENT

OCTOBER 1952

Organization

The month end force of 361 included 28 supervisors, 91 engineers and scientists, 12 clerical and 230 other personnel.

Number of employees on payroll		
Beginning of month	-	367
End of month	-	361
Net decrease	-	6

This was the second straight month that a decrease of 6 was suffered, despite the fact that the department's budgetary plans called for an increase throughout this period. A critical shortage of personnel in some categories is developing. This was temporarily offset by re-assignment of personnel who should have been engaged in bioassay work.

General

Good progress was made in the rehabilitation of the bioassay laboratory through the efforts of personnel of the Utilities and General Services Department.

A meeting of the bio-medical directors of AEC programs was held at this location for the first time. Four employees participated in a health physics conference at Arco, and another four in the AEC research contractors conference at Pullman, Washington. All this represented an unusual degree of participation in general conferences.

A formal training program in radiation protection was begun for 10 ANP trainees and 14 local employees from the Radiation Monitoring Services Units, and the Separations and Reactor Sections Radiation Monitoring Units.

1197866 DECLASSIFIED

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Radiological Sciences Department

During the period covered by this report, all persons in the Radiological sciences department engaged in work which might reasonably be expected to result in inventions, or discoveries, advised that to the best of their knowledge and belief no inventions or discoveries were made in the course of their work except as listed below. Such persons further advised 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.

Inventor	Title
None	None

RADIOLOGICAL RECORDS AND STANDARDS SECTION

1. Radiation Monitoring Services

General Statistics

	September	October	1952 To Date
Special Work Permits	695	483	7295
Routine & Special Surveys	1199	887	12736
Air Samples	2101	1205	18404
Skin Contamination Cases	41	15	659

Contamination of the Redox swamp, southwest of the 200 West Area, required liaison with military forces located in the vicinity to prevent unnecessary entry into the contaminated area.

2. Standards

One Class II and four Class I radiation incidents were reported. The Class II incident involved the overexposure of a material handler in the Metal Preparation Section. The Class I incidents included the contamination of the Redox swamp, exposure of personnel in the crane cabway and bridge at the Redox canyon, exposure of an operator on the front face of the 105-F reactor, when an irradiated piece was withdrawn from the reactor, and exposure of an instrument technician to gas and oil spray during unmonitored work in the manometer cubicle for the filter room of the 100-F Gas Purification building.

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3. Exposure Records

(a) Personnel Meters, and Records and Photometry

General Statistics	September	October	1952 To Date
Gamma pencils read	228,760	229,652	2,145,272
Potential overexposures	8	25	82
Confirmed overexposures	0	0	0
Slow neutron pencils read	956	1,120	9,350
Potential overexposures	1	1	3
Confirmed overexposures	0	0	0
Beta-gamma film badges processed	47,818	38,131	444,150
Potential overexposures	11	3	92 *
Confirmed overexposures	2	1	10
Fast neutron badges processed	360	365	4,362
Potential overexposures	0	0	0
Confirmed overexposures	0	0	0
Lost readings (all causes)	28	33	377

*corrected figure - error in previous report.

(b) Bioassay

The laboratory was inactive.

Tritium Analyses:

	Activity Density ($\mu c/cc \times 10^3$)			
	< 2	2-20	> 20	Total
Number of samples	58	2	0	60

(c) Thyroid Checks

All thyroid checks were below the warning level.

(d) Hand Score Summary

There were 43,964 alpha and 57,173 beta scores reported. About 0.04% of the alpha scores and 0.05% of the beta scores were above the warning level. No attempt was made to reduce one high alpha score at the Redox laboratory or three high beta scores at the Metal Recovery building. Where decontamination was attempted, it was successful.

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4. Calibrations

	Number of Routine Calibrations		
	September	October	To Date
Fixed Instruments	174	212	2,060
Portable Instruments	1,657	2,318	21,055
Personnel Meters	8,381	17,791	145,505
Total	10,212	20,321	168,620

BIOPHYSICS SECTION

CONTROL UNIT

Regional Survey

The general findings are summarized in the following table:

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density μc/cc
Drinking Water		
Benton City Water Co. Well	alpha	1.1×10^{-8}
Richland, N.Richland, Benton City Wells	alpha	< 0.5 to 1.5×10^{-8}
100 Areas	beta	< 0.5 to 5.8×10^{-7}
Pasco, Kennewick, McNary Dam	beta	< 0.05 to 1.1×10^{-6}
Backwash Solids-Pasco Filter Plant	beta	1.8×10^{-2} μc/gm
Backwash Liquids-Pasco Filter Plant	beta	8.8×10^{-7}
Sand Filter-Pasco Filter Plant	beta	3.6×10^{-4} μc/gm
Anthracite Filter-Pasco Filter Plant	beta	2.7×10^{-4} μc/gm

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CONTROL UNIT (Continued)

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density μc/cc
Other Waters		
300 Area Wells #1, 2, 3	alpha	2.6 to 3.8×10^{-8}
300 Area Well #4	alpha	1.2×10^{-7}
Well #4 measured as uranium	U	$< 5.4 \times 10^{-8}$
48 Wells on the reservation	beta	5.0×10^{-8}
Columbia River-Hanford Ferry	beta	1.0×10^{-5}
Columbia River-Patterson to McNary	beta	7.5×10^{-7}
Columbia River-Shore mud	beta	0.2 to 1.5×10^{-4} μc/gm
Raw water - Operating areas	beta	<0.05 to 1.3×10^{-6}
Pile effluent retention basins	beta	3.8×10^{-3}
Pile effluent retention basins	alpha	$< 5.0 \times 10^{-9}$
I^{131} in farm wastes	I^{131}	3.4×10^{-6}
I^{131} in Columbia River-Hanford	I^{131}	8.0×10^{-8}
Atmospheric Pollution		
Gross alpha emitters	alpha	< 0.4 to 5.9×10^{-14}
Gross dose-rate-Separations areas	beta-gamma	0.4 to 3.3 mrep/day
Gross dose-rate-Residential areas	beta-gamma	0.4 to 0.7 mrep/day
Filterable beta-Separations areas	beta	2.1 to 9.7×10^{-13}
I^{131}-Separations areas	I^{131}	0.7 to 5.9×10^{-13}
I^{131}-Separations stacks	I^{131}	1.4 curies/day
Ru-Redox stack	Ru	7.3×10^{-2} curies/day
Active particles-Wash.,Ida.,Ore.,Mont.	-	0.0001 to 0.0067 ptles/m^3
Active particles -Hanford Works	-	0.01 to 0.37 ptles/m^3
Tritium (as oxides)-Reactor stacks	T	7.8×10^{-2} curies/day
Vegetation		
Environs of Separations areas	I^{131}	<3 to 9.0×10^{-6} μc/gm
Residential areas	I^{131}	$< 3.0 \times 10^{-6}$ μc/gm
Eastern Washington and Oregon	I^{131}	$< 3.0 \times 10^{-6}$ μc/gm
Non-volatile beta emitters-Wash., Ore.	beta	2.2×10^{-5} μc/gm
Alpha emitters-Separations areas	alpha	0.6 to 1.0×10^{-7} μc/gm
Alpha emitters-300 Area	alpha	3.8×10^{-7} μc/gm

Analysis of 20 scrubber samples obtained during periods of low atmospheric dilution ratios in the Separations areas showed 4 instances in which the activity density from I^{131} exceeded 1×10^{-9} μc/cc. The maximum measurement was 6.8×10^{-9} μc/cc.

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Special samples obtained at the 107 waste line break in the 100-B Area showed activity density from beta emitters on the order of 1 to 2 x 10^{-5} μc/cc. Alpha emission in these samples was less than 5 x 10^{-9} μc/cc.

The increase previously noted in the activity density from gross beta emitters in water at the Redox swamp continued during this period. Maximum measurements showing 0.1 μc/cc represented a 10-fold increase over September values. Instrument surveys around the swamp perimeter showed readings of 50 to 500 mrep/hr including 10 to 20 mr/hr.

ANALYTICAL CONTROL LABORATORY

Routine and special analyses were carried out as follows:

Analyses Completed

Laboratory

Type Sample	October	1952 to Date
Vegetation	1279	14590
Water	1706	19349
Solids	324	3727
Air samples	282	4520
Uranium (fluorophotometer)	509	5702
Oil fog fluorophotometer	84	1636
Special survey samples (RMU)	36	401
Special survey samples (RS)	100	713
Dow background survey samples	0	177
Phillips Petroleum P-10 water samples	4	4
Total	4324	50819

Counting Room

Beta measurements (recounts included)	5715	63094
Alpha measurements (recounts included)	2419	36858
Control points (alpha and beta)	2786	29462
Decay curve points	4759	37348
Absorption curve points	90	1638
Total	15769	168400

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1197811

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ANALYTICAL CONTROL LABORATORY (Continued)

An analytical procedure was developed for the dissolution of radioactive Ru and I^{131} on air filters with subsequent chemical separation of the ions in the resultant composite solution.

Control Services

Computations adjusting the past six years' routine activity measurements of reactor effluent samples were completed and procedures initiated for the periodic review of the factors used in the calculations. The study to define the interrelationships existing between reactor power levels, water flow rates, and effluent water activity was continued and a definition of the amounts of gross beta emitters added to the Columbia River over the past several years was undertaken.

Synoptic Meteorology

Forecasts	Number made	October Percent Reliability
Production	93	85.1
24-hour	62	91.8
Special	43	93.0

Average temperature for the month was 59.0°. This was 6.0° above normal and 1.7° higher than in any previous October since the beginning of weather records in the Hanford area in 1912. Precipitation totaled 0.04 inch, a small fraction of the normal 0.59 inch; relative humidity averaged 42%, nearly 30% below the October normal. There was no strong wind during the month, the average 50-foot level speed being only 4.4 mph.

ENVIRONMENTAL HAZARDS AND GENERAL STUDIES UNIT

Experimental Meteorology

Two field tests were made to determine the ratios of puff concentrations to average concentrations at a distance of 500 to 550 feet from a source 187 feet high. The temperature differences between the 3-foot level and the 200-foot level were 2.9° and 1.7°F with light winds in both cases. In the first test, seventeen puffs were sampled for periods of 10 to 60 seconds with a maximum ratio of puff concentration to average concentration (measured over a 51-minute period) of 75 to 1; six puffs had ratios greater than 10 to 1. In the second test, 12 puffs were sampled with a maximum ratio of 65 to 1; all of these had a ratio greater than 10 to 1.

1197872

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Geology and Hydrology

Changes in the contamination of the ground water in two wells 500 feet apart in the 361-B Area indicated an eastward movement of the ground water in this region. This movement was estimated to be about 150 feet during a period of 5 months; most of the change occurred in the month of October. This has been attributed to a disturbance of the previously established equilibrium by increases in the amount of water to the 200-West Area swamps and decreases to that in 200-East Area.

The concentration of radioisotopes in the ground water in the 241-T Area continued to increase during the month.

The water in the 108-B wells contained radioactive materials even though the area was shut down early in October for replacement of the leaking effluent line.

Soil Science

Work on the adsorption and release of cesium in soil was continued. Equilibrium studies indicated that solutions more acidic than pH 4 would remove cesium rapidly when successive increments passed through a given unit of soil. The volume of acid solution necessary to effect complete removal of cesium was inversely proportional to the hydrogen ion concentration in the concentration range of 1 to 10^{-4} normal acid. Similar cesium removal studies using sodium nitrate solutions indicated that adsorbed cesium was relatively easily replaced by sodium until the amount of cesium remaining in the soil was reduced to approximately 0.3% of the total exchange capacity; below 0.3% saturation, the rate of removal of cesium became extremely slow.

A column containing 50 grams of washed sand (1 to 2 mm. diameter) removed approximately 60% of the plutonium from 250 ml. of a solution passed through the column. This is a further indication that the mechanism of plutonium removal involves exchange since a colloid or a fine precipitate would probably not be filtered to any appreciable extent by such large sand particles.

Industrial Hygiene

Preliminary data from the respirator testing apparatus indicated that filter-type respirators with ultra filters do not necessarily furnish over-all protection of a similar effectiveness probably due to factors

1197873

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Industrial Hygiene (Continued)

such as leakage of contaminated air around the facepiece. Initial tests with the pneumotachograph, a device to record photographically the "respiratory" flow rates of the breather pumps, demonstrated that the pumps provide the desired airflow characteristics simulating those of a human.

The filter testing program, in its concluding stages, was concentrated on testing an ashless cellulose and a polystyrene paper; each was found to have a relatively low collecting efficiency. AAA Fiberglas and A.D. Little papers were checked for lead content relative to use in the respirator testing apparatus; the former showed ca. 2.0 μg Pb, and the latter, 0.7 μg Pb, per square inch of the paper.

The study of lead and fluoride exposures resulting from the use of new production methods in the canning section of 313 Building was concluded; both substances were found in the workers' breathing zones. Fluorides were present at levels not felt to present any health hazard but the lead content of the atmosphere was found to be about 7 times the MAC during certain phases of the process. Recommendations for control are being submitted.

Methods

Decay curves of the noble gas component in the T Plant stack were determined from measurements with internal proportional counters; results indicated that only about 10-20% of the noble gas activity arises from Xe^{133}, with the remainder presumably from Kr^{85}. Four determinations using silver nitrate impregnated filter pads for the air sampling for I^{131} gave results comparable with or higher than those from a caustic scrubber operated in parallel.

Attempts to remove plutonium and uranium from tributyl phosphate solutions by the use of reducing agents in aqueous media gave yields of 70-75% for plutonium, but only 15-30% for uranium. Ether extraction using Soxhlet apparatus gave maximum yields of 70% with a double pass of the extractant.

Plotting of the decay curves of two samples of noble gas from the reactor effluent water continued; apparent half-lives of 30-50 days are indicated. The addition of a sodium trap to the argon fill in the proportional counters has greatly increased their long period stability.

A procedure for the determination of P^{32} in reactor effluent water using a cation exchange resin for primary decontamination followed by an ammonium molybdophosphate precipitation was investigated. Yields were in excess of 95% with apparently satisfactory decontamination from short-lived emitters as determined by decay curves.

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Radiochemical Standards

Recheck of the backscatter factor for S^{35} mounted on stainless steel indicated that the factor decreased by 6% from the first to the fifth shelf of the mica window counter. Shielding experiments suggested that a significant difference between air and wall scatter effects for S^{35} and RaE may account for the shelf to shelf agreement for RaE and not for S^{35}.

Many S^{35} backscatter measurements made using the 2 π proportional counter confirmed a factor of 1.41 for stainless steel. Studies of anode loop diameters indicated the loop size not to be critical for hemispherical chambers and point sources at the center of the chamber. Response to point sources removed from the center showed loop size to be a variable with flatter response being obtained with loops one-half inch or slightly larger in diameter. The new USBS-type 4 π chamber was tested with generally satisfactory performance.

RADIATION MEASUREMENTS

Physics

Measurements were completed of the surface dose from bare and from plated plutonium metal. Absorption data permitting an evaluation of the protection afforded by various types of gloves were obtained. Equipment was built and tested which will permit the use of Victoreen thimble chambers applying a current collection rather than the usual rate-of-discharge method; this will be used for future high-scale calibrations.

Exploratory work with pure water vapor in an ionization chamber was carried out in anticipation of the measurement of tritiated water vapor. When the latter was introduced into the chamber, considerable difficulty was encountered due to its adsorption on the walls.

Rigging for suspending neutron counting equipment at heights as great as 150 feet from the ground was installed on one of the supporting cables of the Meteorology Tower and measurements were started with a moderated BF_3 counter.

Analysis of the data accumulated for geiger tube age characteristics has suggested that the total charge which has flowed through a tube is not a complete specification of the age of a tube; such would be the case if the age characteristics were due only to decomposition of the counting gas but preliminary data have indicated that other factors are of appreciable importance.

1197875

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Instrument Development

Designs of prototypes of two portable alpha survey instruments were completed and orders for construction of the components were placed on the instrument shop. The first is a portable "poppy"-type detector producing only an audible count indication, while the second is a "Zeuto"-type device with meter and no audible signal.

Mechanical design of an evaporator for shadowing electron microscope samples was completed, and mechanical construction started. All components of the complete system were ordered.

The T.P. survey meter was redesigned to facilitate use with short probe extensions, to simplify maintenance, and to have a shorter time constant.

A comparison of R.C.A. type 5819 and E.M.I. type 5311 photomultipliers for gamma spectrum analysis was started, and preliminary data were obtained. Anthracene and sodium iodide crystals were tested and study was initiated on the effect of various housings on the resolving power of crystals.

BIOLOGY SECTION

AQUATIC BIOLOGY UNIT

Biological Chains

Tracing of reactor effluent isotopes through communities of pond microorganisms in aquaria was initiated. Six 50-gallon aquaria were established with uncontaminated river water, containing mud in aluminum trays and glass plates for side-wall sampling. Aquaria were seeded with pond organisms and have developed toward maturity.

Ecology

Survey of the Columbia River

Ideal collecting conditions, including record low water levels, permitted sampling from the shore zone to continue without interruption during the month. Average activity density values for Hanford were 2.4×10^{-3} μc/g of small fish, 4.6×10^{-3} μc/g of bottom algae, 6.2×10^{-3} μc/g of caddis

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Survey of the Columbia River (Continued)

fly larvae, and 2.1 x 10^{-2} μc/g of plankton. The value for plankton was about twice that observed last month, while other values were essentially unchanged. Maximum activity density of large fish was 8.7 x 10^{-3} μc/g of sucker bone with an associated muscle value of 7 x 10^{-4} μc/g. Maximum values for game fish (bass) were lower by a factor of five.

Chinook salmon began spawning in this section of the river about the middle of the month, and surveys of the nesting areas are again being made from AEC Security Patrol planes.

Effluent Monitoring

Routine monitoring of the area effluent with silver salmon fingerlings was completed on October 27. The 15,000 control and 12,500 5% effluent fish, marked by removal of pelvic fins, were transported to the Applied Fisheries Laboratory at the University of Washington for acclimatization and eventual release to Puget Sound. Results at the conclusion of this monitoring are indicated in the following table:

Condition	River Water	1%	2%	3.5%	5%	10% Effluent
Egg Mortality Percent	11	14	12	12	13	32
Fingerling Mortality %	9	10	9	14	12	34
Size in grams	7.0	7.6	8.1	7.1	6.6	5.9

Definite toxicity was indicated by mortality at the 10% level and by size at the 5% level. Slight toxicity may also occur at the 3.5% level.

Monitoring was resumed with chinook salmon eggs obtained from the State of Washington Department of Fisheries on October 30. The studies were mainly designed to elucidate the effects of chemical composition of the water.

A test to evaluate possible effect of increased temperatures, as might result from expanded reactor operations, on chinook salmon was initiated on October 30 with eggs obtained from the State of Washington Department of Fisheries. Attempts to capture local salmon so that a parallel set of tests could be established with their eggs have not yet met with success.

1197877

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BIOLOGICAL SERVICES UNIT

Biological Monitoring

Thyroid activity densities of rodents sampled during the month ebbed to probably their lowest value since full-scale operation of Hanford Works began. The highest average activity density (2×10^{-4} μc/g) was found in animals collected near the 200-East Area. Activity densities in ring-necked pheasants were negligible.

Following the annual migrant influx, Canada goose feces were found to yield a maximum activity of 3,000 d/m/g, due to P^{32}.

Clinical Laboratory

Twelve hundred and forty-five determinations.

Microscopy

Routine histological preparations and photomicroscopy.

In electron microscopy, assistance to the Technical Section continued. Particle size distribution studies of mercury vapor were initiated during the month for Industrial Hygiene.

Radiochemistry Laboratory

Services included 75 TTA and ether extraction determinations in biological samples, the preparation of 30 isotope solutions, and the analyses of special and routine samples involving approximately 3,700 alpha and beta counts.

Difficulty in analyzing for Pu in the presence of zirconium oxide continued. New methods for dissolving the oxide in a flux of persulfate were tried.

METABOLISM UNIT

Animal Metabolism

The effectiveness of a number of decontamination procedures was studied on rat skin areas contaminated with approximately 400 μg Pu (IV) in 5 ul of 10N HNO_3. Fifteen minutes after Pu application, the areas were treated

1197878

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Animal Metabolism (Continued)

with various solutions by: (1) irrigating the area for 4 minutes using 3 liters of solution; (2) swabbing the area for 10 minutes using 24 swabs; or (3) irrigating with water, followed by swabbing. All procedures were run in duplicate. Of the solutions used for irrigating, acetic acid (10%) was most effective, leaving about 2% of the applied plutonium. Citric acid (10%), HCl (6N), and EDTA (8%), were less effective in the order listed, about 8% of the applied Pu being left after EDTA irrigation. The most effective swabbing procedure involved $KMnO_4$ in 0.2N H_2SO_4, followed by $NaHSO_3$, soap and water. This treatment left only about 0.3% of the applied Pu. Hydrochloric acid (6N), acetic acid (10%) and citric acid (10%) were slightly less effective but left less than 1% of the applied Pu. Water alone left about 1%. Agents less effective than water in order of decreasing effectiveness include: tannic acid (10%) plus H_2O_2 (3%), titanium dioxide, picric acid (saturated) + H_2O_2 (3%), $KMnO_4$ - $NaHSO_3$ - liquid soap (present RMSU procedure), Ponds cleansing cream, Tide (10%), EDTA (8%), and lanthanum nitrate (10%) plus H_2O_2 (3%). Irrigation with water prior to swabbing with the agents previously listed did not significantly improve decontamination.

Comparison of tritium and deuterium retention in samples from rats administered D_2O and HTO over a 5-week period shows no difference greater than 10% for liver, muscle, fat, pelt, brain and residual carcass. A 24% and 40% difference, favoring deuterium retention, was obtained for two bone samples. Rechecks on many of these analyses will be necessary before final conclusions may be reached.

Analyses for bound tritium were completed on all samples obtained from the sheep sacrificed 235 days following administration of 3 curies HTO. Over this period, the proportion of bound tritium retained in most of the sheep samples exceeded that retained in rat samples over a similar time period by factors of 2 to 4. An exception was the case of fatty tissues. Mesenteric fat, perirenal fat, and yellow marrow from the sheep, retained 15 to 20 times the proportion of tritium retained in rat abdominal fat.

Microbiology

Preliminary studies were made of the Fe(II)-Fe(III) and Ce(IV)-Ce(III) systems for use as radiation dosimeters in support of rem/rep determinations.

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Plant Nutrition

The absorption of ruthenium by bean plants was studied using the standardized growth chamber techniques. Ruthenium was rapidly removed from solution by precipitation and adsorption on the root surfaces. Uptake efficiency was very low, the ratio of ruthenium concentration in the leaves to ruthenium concentration on the roots being 5×10^{-6} with 1.0 ppm ruthenium added to the nutrient solution and with a pH of 6. Absorption of ruthenium is lower than that of yttrium by a factor of 100, and lower than that of strontium by a factor of 10^5.

The series of exposures of tomato plant leaves to iodine vapor, at various values of nutrient pH, were completed. The maximum translocation of iodine from the exposed leaf was 1.7%, at a pH of 7.

A study was made of the effect of strontium concentration on total plant nitrogen and insoluble protein nitrogen in the bean plants. Increases in nutrient strontium concentration up to 10 ppm caused a slight increase in total nitrogen. A strontium concentration of 500 ppm resulted in a slight decrease both in total nitrogen and protein nitrogen.

Plant Metabolism

No result.

TOXICOLOGY UNIT

Experimental Animal Farm (Toxicology of I^{131})

Chemical analysis of the arterial plaques found at postmortem on an athyroid ewe showed them to be exceedingly high in calcium with no increase in the chloesterol content.

The ratio of I^{131} deposited in the thyroid gland to the amount of I^{131} administered daily shows no substantial change from the September report. In continuation of the study to determine the relative efficiency of various routes of administration of I^{131} on thyroid uptake, four ram lambs were given another 45 μc tracer dose. Maximal thyroid uptakes

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Experimental Animal Farm (continued)

determined by external monitoring were as follows:

Route of Administration	μc in thyroid gland	
	1st tracer dose	2nd tracer dose
Intravenous	27	25
Intrapulmonary	19	24
Per os	19	23
Topical	14	7

A different route of administration was utilized for each individual for this second tracer dose. The maximum thyroid uptakes appeared to be reached about 12 hours earlier after the second tracer dose.

Physiology

The retention of plutonium by the dog varies slightly with the valence state, the (IV) state being retained to a greater degree. Both plutonium (IV) and (VI) were preponderantly deposited in the liver and skeleton. Up to 90% of the administered dose (intravenous) was removed by prompt treatment with zirconium at a level of about 100 mg/kg. There appeared to be no advantage in higher amounts of zirconium. There was no apparent shifting to tissues other than the liver and bone when plutonium (VI) was administered, and only an insignificant build-up in the case of plutonium (IV) when sufficient zirconium was given.

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FINANCIAL DEPARTMENT MONTHLY REPORT
OCTOBER, 1952

Summary

Work continued on the midyear review of the budget for fiscal year 1953. Revised departmental manpower estimates were approved by the Appropriations and Budget Committee and were submitted on October 17, 1952 to the Budget Division of HOO-AEC.

Weekly-paid employees' absence records for the year ended June 30, 1952 were reviewed to obtain information regarding absences aggregating more than ten days during that period. Reports on approximately 1100 such absences will be submitted to department managers for use in efforts to reduce absenteeism.

Deductions from employees' pay, for contributions to the Nucleonics Employees Good Neighbor Fund, were begun in October. Deductions during the month aggregated $4998. These and subsequent deductions will be paid to the Fund after the election of trustees in November.

The microfilming of certain payroll records, for offsite storage of the microfilm copies, was begun in October.

Income in the amount of $170,650 was received during October on insurance funds aggregating $10,500,000 advanced to the Travelers Insurance Company and the Travelers Indemnity Company and deposited with the Guaranty Trust Company of New York. The income was for the six months ended August 31, 1952 and represented interest received on United States Government securities less investment management and custodian fees. A check for the amount of the income received, payable to the Treasurer of the United States, was transmitted to HOO-AEC.

Statistics

A summary of cash disbursements and receipts (excluding reimbursements by AEC) for the months of October and September, 1952, is shown below:

Disbursements	October	September
Payrolls (net)	$2 977 511	$2 646 532
Materials and Freight	1 642 093	1 434 789
Payroll Taxes	547 810	540 521
Income from Special Funds transferred to AEC	170 650	-0-
U. S. Savings Bonds	165 383	219 873
Pension Plan - Employees' Portion	88 957	68 878
Payments to Subcontractors	12 953	19 912
Other	253 266	291 436
Total	5 858 623	5 221 941

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Receipts	October	September
Income from Special Funds	$ 170 650	$ -0-
Rents	103 515	90 031
Sales to AEC Cost-Type Constrctors	61 802	83 054
Hospital	58 696	66 077
Utilities	35 125	54 863
Telephone	19 575	19 413
Scrap Sales	9 082	18 649
Bus Fares	9 004	9 794
Miscellaneous Accounts Receivable	8 827	9 582
Refunds from Vendors	3 999	5 159
Other	22 258	8 158
Total	502 533	364 780
Net Disbursements	$5 356 090	$4 857 161

Advances as of October 31 and September 30, 1952 may be summarized as follows:

	October 31	September 30
Cash in bank - contract accounts	$3 968 910	$4 467 839
Cash in bank - salary accounts	50 000	50 000
Travel advance funds	125 000	125 000
	4 143 910	4 642 839
Disbursements not reimbursed	5 356 090	4 857 161
Total	$9 500 000	$9 500 000

Personnel and Organization

	Current Month	Prior Month
Personnel Changes During Month		
Employees at beginning	356	356
Additions and transfers in	12	13
Removals and transfers out	(12)	(13)
Employees at close	356	356
Personnel by Sections at Month-End		
General	10	10
General Accounting Section		
General Accounts	24	23
Plant Accounts	26	26
Accounts Payable - General	24	24
Accounts Payable - Engineering	15	18
Accounts Receivable	21	21
General	3	2
	113	114

Personnel and Organization (continued)

	Current Month	Prior Month
Payroll Section		
Payroll Preparation	29	31
Employee Benefit Plans	14	14
Confidential Payroll	16	15
Payroll Records	8	7
Statistics & Reports	7	7
General	7	7
	81	81
General Cost Section		
Consolidated Costs and Budgets	7	5
Utilities & General Services	17	15
Community Real Estate & Services	13	13
Radiological Sciences and Other	6	6
Medical	3	3
General	2	2
	48	44
Manufacturing Cost Section		
Costs and Budgets	34	34
General	6	6
	40	40
Engineering Cost Section		
Project Section Costs	20	20
Design Section Costs	8	9
Technical Section Costs	8	9
General	4	5
	40	43
Internal Audit Section	14	13
Rotational Trainees	10	11
Total	356	356

Sections' Reports

The monthly reports of the six sections of the Financial Department, as listed below, are shown on the following pages.

General Accounting Section	Ia-1 through Ia-10
Payroll Section	Ib-1 through Ib-9
General Cost Section	Ic-1
Manufacturing Cost Section	Id-1 through Id-3
Engineering Cost Section	Ie-1 through Ie-2
Internal Audit Section	If-1

GENERAL ACCOUNTING SECTION
MONTHLY REPORT - OCTOBER, 1952

ACCOUNTS PAYABLE

Volume of work in the Accounts Payable Units has steadily increased during the past three months. This increase is being experienced not only in Operations accounts payable but also in Engineering accounts payable, which was forecast to gradually decrease. For example, a total of 2,248 purchase orders was received in October as compared with 1,976 in September. Number of vouchers booked increased from 3,312 to 3,776, and number of checks issued increased from 1,876 to 2,115.

Number of personnel required to handle accounts payable work at October 31, 1952, was 39. Reduction in personnel has not been effected as rapidly as planned, but the number currently on the roll is within budgeted manpower ceilings. A reduction of 5 employees, however, has been made since September 1, 1952.

During October special attention was given to two phases of the work, in addition to normal accounts payable functions. This represented (1) final audit of completed purchase order files and their transmittal to permanent storage, and (2) reduction in the amount of paid vouchers on hand which required additional supporting data before they could be considered complete. Approximately 2,500 finally audited purchase order files were sent to permanent storage in October.

The value of paid vouchers on hand over sixty days old which cannot yet be finally approved was $261,463, as compared with $1,170,759 at September 30, 1952.

Cash discounts earned in October totaled $4,146.

Financial and Engineering Department representatives held two meetings to discuss invoicing and receiving techniques to be utilized by National Carbon Company in regard to Special Agreements G-5 and G-12. The decisions resulting from these discussions will be incorporated by the contract administrator into an instruction letter to the subcontractor. These instructions, along with others which will be issued in subsequent months, are expected to eliminate many problems in connection with accounts payable work under these contracts.

1197885

General Accounting Section

ACCOUNTS RECEIVABLE

The accounts receivable balance at October 31, 1952, amounted to $522,832, an increase of $14,500 from the balance at September 30, 1952.

During October a total of $535,782 was charged to accounts receivable, as compared with collections of $519,965. Total accounts receivable at October 31, 1952, together with charges and credits to these accounts, may be detailed as follows:

Description	Number Of Accounts	Charges	Credits	Balance 10/31/52
AEC Cost-type Contractors	23	$ 56 403	$ 61 802	$219 800
Hospital	1 430	71 228	63 536	126 428
Rent	6 174	298 097	301 909	62 176
Electricity	6 218	46 324	35 125	21 917
Telephone	5 614	46 921	43 313	16 062
Others	1 035	16 809	14 280	76 449
Total	20 494	$535 782	$519 965	$522 832

A total of 21 employees, which is within the budgeted manpower ceiling, are currently engaged in handling accounts receivable work.

Arrangements were completed, through the Atomic Energy Commission, for Kaiser Engineers to make payroll deductions for services rendered their employees by Kadlec Hospital. Procedures established provide for accounts receivable personnel at Kadlec Hospital to obtain payroll deduction authorizations from Kaiser Engineers employees, and for Kaiser Engineers to remit collections to General Electric each month.

An explanation of all amounts and numbers as shown on electricity bills appeared in the Works News issue of October 17, 1952. This full-page explanation, which included a facsimile of an electricity bill, was prompted by numerous questions and misinterpretations by consumers relative to these items.

At October 31, 1952, the accumulated reserve for bad debts amounted to $41,649. Included in the accounts receivable balances are accounts totaling $16,737, which are in the hands of collection agencies and will probably be found to be nearly 100% uncollectible.

1197886

General Accounting Section

GENERAL ACCOUNTS

Advances from the Atomic Energy Commission at October 31, 1952, amounted to $9,500,000, the same as at September 30, 1952.

Income from special funds in the total amount of $170,649.80 was received this month from the Guaranty Trust Company of New York. One check, in the amount of $164,026.98, represented income from The Travelers Insurance Company - Collateral Fund Account G, and the other check, in the amount of $6,622.82, represented income from The Travelers Indemnity Company - Collateral Fund Account G. Upon receipt, these checks were deposited in our contract bank account, and immediately a contract check was drawn payable to The Treasurer of the United States transferring this amount to the government.

The balance of the Travel Advance account increased from $42,732 as of September 30, 1952, to $57,290 as of October 31, 1952. The October 31, 1952, balance may be segregated as follows:

Month Advanced	Number Open Advances	Amount
October	119	$45 262
September	57	10 730
August	3 *	696
Prior to August	3 *	602
Total Advances	182	$57 290

* Settlement of these accounts, with one exception, was received in October but not booked until November.

A total of 206 expense reports in the amount of $27,694 were submitted in October, as compared with 186 expense reports totaling $20,370 in September. The September monthly report, "Summary of Living Expenses," detailing average per diem expenses, was issued on October 15, 1952.

Approximately 800 journal entries were posted to general ledger accounts in October. The final journal entry for September was received on October 17, 1952, and the September trial balance was issued on October 18, 1952.

General Maintenance inventory, Stand-by inventory, and Spare Equipment Held in Storage subaccount status reports, which are used in reconciling book values with physical inventory, were issued on October 7, 1952. Approximately 30,000 stores

1197887

GENERAL ACCOUNTS (CONTINUED)

tickets for General Maintenance and Stand-by inventories and 500 stores tickets for Excess Materials and Held for Possible Future Use inventories were processed and forwarded to various cost sections during October. Final journal entries affecting inventory accounts were received and posted October 13, 1952, and the inventories report was issued October 15, 1952.

Considerable time was spent this month revising the consolidated project cost report. Also, work progressed on preparation of the net working capital budget for the second, third, and fourth quarters of fiscal year 1953.

Activity in the Cashier's office was extremely heavy this month. Approximately 9,500 receipts were issued for rent, electricity, telephone, and miscellaneous payments.

The General Accounts Unit will assume considerable additional responsibilities under a new procedure which is to become effective November 1, 1952, relating to control of stores documents. Work progressed this month in designing registers and forms to be used in this connection.

PLANT ACCOUNTS

During the month a special report was issued for use by operating personnel in connection with studies relating to 100 Area water systems. The report furnished the value of water systems segregated into three categories: pumping, treatment, and disposal. The report also furnished detail by type of equipment, total recorded cost, and the amount of monthly depreciation expense. Approximately 1½ man months were spent in consolidating this information.

A change in the manner of depreciating tank farms was made during the month. Previously, tank farms had been depreciated at a flat rate of 100% annually. The change provided for depreciation at a standard rate per gallon of material stored, which will result in 100% depreciation at such time as tanks are completely filled.

The report, "Expenditures for Equipment not Included in Construction Projects, Fiscal Year 1952," was revised during the month to include acquisitions during the first quarter of fiscal year 1953 and commitments at September 30, 1952, which were applicable to the fiscal year 1952 budget. This report indicates expenditures and commitments by departments and sections, showing a comparison of expenditures to budgeted amounts.

1197088

General Accounting Section

PLANT ACCOUNTS (CONTINUED)

A special report was issued in October summarizing fixed assets and accrued reserves at June 30, 1952. Included in this report was a comparison of the percentage of reserve to first cost, the annual composite rate of depreciation, and the net book value of assets at June 30, 1952.

Field personnel devoted the major part of their time in October to the verification of information and investigation of apparent discrepancies contained in completed project unitization reports. Also, difference between recorded catalogued shop equipment and a recent physical inventory of this equipment were investigated.

1197889

General Accounting Section

	October	September
Accounts Payable		
Balance at Beginning of Month	$ 473 290	$ 348 387
Vouchers Entered	2 787 915	2 475 280
Cash Disbursements	2 715 729 DR	2 355 536 DR
Cash Receipts	3 999	5 159
Balance at End of Month	$ 549 745	$ 473 290
Number of Vouchers Entered	3 776	3 312
Number of Checks Issued	2 115	1 876
Number of Freight Bills Paid	1 910	2 114
Amount of Freight Bills Paid	$ 433 946	$ 518 673
Number of Purchase Orders Received	2 248	1 976
Value of Purchase Orders Received	$1 041 897	$1 323 977
Cash Disbursements		
Material and Freight	$1 642 093	$1 434 789
Payrolls (Net)	2 977 511	2 646 532
Payroll Taxes	547 810	540 521
Lump Sum and Unit Price Subcontracts	12 953	19 912
United States Savings Bonds	165 383	219 873
Pension Plan - Employees' Portion	88 957	68 878
Income From Special Funds Transferred to AEC	170 650	-0-
All Other	253 266	291 436
Total	$5 858 623	$5 221 941

1197890

General Accounting Section

	October	September
Cash Receipts		
Prior Month's Expenditures Reimbursed by Atomic Energy Commission	$4 857 162	$4 601 761
Income from Special Funds	170 650	-0-
Rents	103 515	90 031
Sales to AEC Cost-type Contractors	61 802	83 054
Hospital	58 696	66 077
Electricity	35 125	54 863
Telephone	19 575	19 413
Scrap Sales	9 082	18 649
Bus Fares	9 004	9 794
Miscellaneous Accounts Receivable	8 827	9 582
Refunds from Vendors	3 999	5 159
Other	22 258	8 158
Total	$5 359 695	$4 966 541

Bank Balances at End of Month		
Chemical Bank & Trust Company - New York Contract Account	$1 116 527	$ 958 045
Seattle - First National Bank - Richland Contract Account	2 131 179	2 829 564
United States Savings Bond Account	208 286	220 283
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	63 [illegible]	79 712
Seattle - First National Bank - Seattle Escrow Account	5 875	5 875
National Bank of Commerce - Richland Contract Account	721 204	680 229
Total	$4 296 314	$4 823 708

1197891

General Accounting Section

	October	September
Accounts Receivable		
AEC Cost-type Contractors	$ 219 800	$ 225 198
Hospital	126 428	118 073
Rents	62 176	71 222
Equipment Sales to Facilities	40 973	41 322
Miscellaneous Services	34 398	26 736
Electricity	21 917	11 885
Telephones	16 062	13 401
Safety Shoes	1 078	495
Sub-total	522 832	508 332
Reserve for Bad Debts	41 649 CR	40 961 CR
General Ledger Balance	$ 481 183	$ 467 371
AEC Cost-type Contractors		
Number Invoices Issued	67	63
Amount of Invoices Issued	$ 56 403	$ 75 969
Cash Received	61 802	83 054
Hospital		
Number Out-Patient Invoices Issued	2 049	2 023
Charges During the Month	$ 71 228	$ 64 641
Collections - Cash	58 696	66 077
- Payroll Deductions	4 840	5 937
Rents		
Houses		
Number Houses Occupied	6 042	6 039
New Leases and Lease Modifications	104	155
Lease Cancellations	82	138
Charges During the Month	$ 222 922	$ 222 774
Collections - Cash	39 762	37 244
- Payroll Deductions	185 912	186 069
Dormitories		
Number Rooms Occupied	1 067	1 083
New Assignments	132	129
Removals	148	124
Charges During the Month	$ 14 885	$ 15 181
Collections - Cash	3 463	2 853
- Payroll Deductions	12 482	12 174
Facilities		
Number Facility Leases	135	135
Revenue	$ 60 290	$ 59 210

1197892

General Accounting Section

	October	September
Accounts Receivable		
Miscellaneous Services		
Number Invoices Issued	365	286
Amount of Invoices Issued	$ 12 008	$ 10 846
Cash Received	8 827	9 582
Electricity		
Number of Bills Issued	6 147	6 139
Amount of Bills Issued	$ 46 324	$ 43 360
Cash Received	35 125	54 863
Telephones		
Working Telephones (Excludes Official Telephones)	5 664	5 614
Telephone Work Orders Processed	304	309
Charges During the Month	$ 46 921	$ 45 319
Collections - Cash	19 575	19 413
- Payroll Deductions	23 738	24 192

	Number	Amount
Uncollectible Accounts (Total to Date)		
Accounts Forwarded to Collection Agencies	435	$ 39 866
Accounts Returned as Uncollectible	102	17 436
Collections	162 -1)	5 693 -2)
Balance at Collection Agencies October 31, 1952	201	$ 16 737

(1- Includes 132 accounts collected in full and 30 accounts partially collected.

(2- Represents total collections, half of which is remitted to General Electric.

1197893

General Accounting Section

	October	Total to Date
Scrap Sales		
Number of Sales	12	550
Revenue (Excluding Sales Tax)		
Scrap Sales	$ 9 082	$ 566 479
Tract House Sales		
Revenue to Atomic Energy Commission	360	35 461
Revenue to General Electric	862	15 773
Total	$ 10 304	$ 617 713
Travel Advances and Expense Accounts		
Cash Advances - Beginning of Month	$ 42 732	$ 32 168
Advances During the Month	53 840	41 086
Expense Accounts Submitted	27 694 CR	20 570 CR
Cash Refunded	11 588 CR	9 952 CR
Cash Advances - End of Month	$ 57 290	$ 42 732
Outstanding Cash Advances		
Current	$ 45 262	$ 34 578
Over 30 Days	12 028	8 154
Total	$ 57 290	$ 42 732
Traveling and Living Expenses		
Paid Employees	$ 23 946	$ 21 249
Billed to Government	22 034	20 109
Balance in Variation Account at End of Month	4 468 DR	2 556 DR

1197894

Payroll Section - Monthly Report
October, 1952

One of the major non-routine tasks completed by the Payroll Section in October was the analysis of 6 200 absence records of weekly-paid employees to provide department managers with data on employees having a year or more of continuous service who had been absent more than 10 days during the 12 months ended June 30, 1952. Approximately 1 100 special absence reports were prepared in conjunction with this analysis, which required approximately 600 man-hours.

Retroactive premium payments to community firemen who were on duty on holidays for the period from December 1, 1951 through September 30, 1952 were made in October in accordance with Reimbursement Authorization No. 193, issued by the AEC on September 24, 1952, authorizing the payment of straight-time pay, in addition to their regular pay for the holiday, to firemen under the platoon system actually working on the holiday. Retroactive payments to 53 firemen aggregated $3 021.

A list of eligible employees who had not taken their vacations for 1952 as of the end of September was furnished each department manager in October. Preparation of these lists, which included the number of days' vacation remaining for each employee who had not taken his vacation or had taken only part of it, required approximately 260 man-hours.

The first deduction from salaries of weekly paid employees who authorized payroll deductions for the Good Neighbor Fund was made on October 10. Deduction from salaries of monthly-paid employees was on October 31.

The program for micro-filming certain payroll records got under way in October. All records to be micro-filmed were assembled for filming and actual photographing was begun.

In connection with the program to place copies of pertinent records in off-site storage, 43 packages of payroll records were mailed to Schenectady last month.

A special report relating to college graduates in the Technical Section was furnished to the comptroller's office in October. Approximately 80 man-hours were required to prepare this report.

A total of 1 269 checks amounting to $75 499, covering 976 benefit claims were received from Metropolitan Life Insurance Company during October and forwarded to employees, hospitals and surgeons. Since December 1, 1950, the effective date of the new insurance plan, employees of the Nucleonics Division have received $1 342 338 in benefits under the health provisions of the plan.

United States Savings Bonds purchased under the G. E. Savings and Stock Bonus Plan during the years 1948, 1949 and/or 1950 were withdrawn by 12 participants, and checks covering the income earned at December 31, 1951 on the forfeited stock which had been contingently credited to their accounts were delivered to them.

There were 8 772 employees on the payroll as of October 31, 1952 as compared with 8 789 employees on September 30, 1952, a net decrease of 17. There were 144 removals from the payroll during the month, including 11 leaves of

1197895

Payroll Section (continued)

absence and 39 illness removals. A total of 127 employees were added to the payroll, including 21 employees re-engaged with continuous service.

Due to transfer or reclassification of employees, preferential rates were eliminated in 8 cases of weekly-paid employees during the month. A total of 829 weekly-paid employees were on preferential rates as of October 31, 1952.

A total of 528 weekly-paid employees were scheduled to begin their 1952 vacations in October. To date, 6 922 vacation notices covering 1952 vacations have been received for weekly-paid employees.

Bank reconciliations completed in October were:

Bond Account - September, 1952.
Monthly Payroll No. 73, Septebmer, 1952.

1197896

Payroll Section (continued)

STATISTICS Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	8 789	2 231	6 558
Additions and transfers in	127	8	119
Removals and transfers out	(144)	(20)	(124)
Transfers from weekly to monthly payroll		24	(24)
Transfers from monthly to weekly payroll		(11)	11
Employees on payroll at end of month	8 772	2 232	6 540

Number of Employees	October	September
Bargaining group - HAMTC	3 488	3 479
Bargaining group - Building Services	64	68
- Two Platoon Firemen	46	52
- Hanford Guards	555	562
Other weekly - non-bargaining	2 433	2 449
Executive, administrative and operating	1 701	1 681
Professional	484	491
Other Monthly	1	7
Total	8 772	8 789

Number of Employees		
Engineering	1 438	1 499
Manufacturing	3 313	3 210
Utilities & General Services	2 242	2 235
Community	221	202
Real Estate & Services	267	311
Financial	356	356
Employee & Public Relations	107	105
Radiological Sciences	361	364
Medical	263	273
General	25	26
Law	6	6
Accountability	18	18
Technical Personnel	155	184
Total	8 772	8 789

Overtime Payments		
Weekly Paid Employees	$102 170	$71 247
Monthly Paid Employees	28 071 (a)	24 034 (b)
Total	$130 241	$95 281

Number of Changes in Salary Rates And Job Classifications	1 546	1 390

(a) Payments cover period October 1 through October 31, 1952 except in the case of Patrolmen in the Plant Security & Services Section of the Utilities and General Services Department who were paid for the period September 1 through September 30, 1952. Includes overtime for the month at the rate of time and one-half on the first $7 500 of annual base compensation.

(b) Payments cover period September 1 through Septebmer 30, 1952, except in the case of Patrolmen in the Plant Security and Services Section of the Utilities and General Services Department who were paid for period August 1 through August 31, 1952. Includes overtime for the month at the rate of time and one-half on the first $7 500 of annual base compensation.

1197897

Payroll Section (continued)

Gross Amount of Payroll	October	September
Engineering	$ 712 232	$ 713 125
Manufacturing	1 653 169	1 449 674
Utilities & General Services	968 366	857 145
Community Real Estate & Services	220 592	197 479
Other	561 865	501 499
Total	$4 116 224(a)	$3 718 922(b)

Annual Going Rate of Payroll		
Base	$41 032 140	$40 957 724
Overtime	1 532 325	1 355 514
Isolation Pay and Area Differential	2 000 276	1 970 695
Shift Differential	472 590	456 209
Other	26 659	25 220
Total	$45 063 990	$44 765 362

Average Hourly Base Rates		
Bargaining group - HAMTC	$2.133	$2.130
- Building Services	1.653	1.643
- Two Platoon Firemen	2.090	2.091
- Hanford Guards	1.864	1.862
Other Weekly - non-bargaining	1.804	1.804
Executive, administrative and operating	2.959	2.963
Professional	3.234	3.132
Other Monthly	2.350	2.254
Total	$2.242	$2.233

	October			September		
Average Earnings Rate Per Hour (c)	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	$1.938	$3.143	$2.593	$1.953	$3.073	$2.582
Manufacturing	2.351	3.118	2.500	2.340	3.164	2.482
Utilities & General Services	2.030	2.877	2.143	2.023	2.873	2.135
Community Real Estate & Services	2.098	2.672	2.285	2.079	2.638	2.266
Other	1.870	3.269	2.189	1.878	3.243	2.182
Total	$2.131	$3.083	$2.366	$2.124	$3.059	$2.355

(a) Includes payments for five-week period ended October 26, 1952 in the case of weekly paid employees. Includes $3 475 retroactive area differential increase for the period March 15, 1952 through August 31, 1952 in the case of monthly paid employees. Also includes $3 021 retroactive payments to two platoon firemen for premium holiday pay for period December 1, 1951 through September 30, 1952.

(b) Includes payments for four-week period ended September 21, 1952 in the case of weekly paid employees. Includes $32 306 retroactive area differential increase for the period March 15, 1952 through August 31, 1952 in the case of monthly paid employees and $191 943 for the period March 17, 1952 through September 14, 1952 for weekly paid employees.

(c) Includes shift differential and isolation pay in the case of weekly paid employees and area differential in the case of monthly paid employees. Excludes overtime premiums, commissions, suggestion awards, etc.

1197898

Payroll Section (continued)

Employee Benefit Plans	October	September
Pension Plan		
Number participating at beginning of month	7 219	7 180
New participants and transfers in	184	119
Removals and transfers out	(65)	(80)
Number participating at end of month	7 338	7 219
% of eligible employees participating	93.4%	93.3%

Employees Retired	October	Total to Date
Number	8	236 (a)
Aggregate Annual Pensions Including Supplemental Payments	$1 513	$55 265 (b)
Amount contributed by employees retired	3 917	61 153

(a) Includes 9 employees who died after reaching optional retirement age but before actual retirement. Lump sum settlements of death benefits were paid to beneficiaries in these cases.

(b) Amount before commutation of pensions in those cases of employees who received lump sum settlement.

	October	September
Number who became eligible for participation	190	122
Number who applied for participation	142	82
Number who elected not to participate	39	26
Replies not received	9	14

Insurance Plan (c)		
Personal Coverage		
Number participating at beginning of month	8 926	8 989
New participants and transfers in	107	120
Cancellations	(15)	(14)
Removals and transfers out	(111)	(169)
Number participating at end of month	8 907	8 926
% of eligible employees participating	98.6%	98.6%
Dependent Coverage		
Number participating at beginning of month	5 710	5 689
Additions and transfers in	64	77
Cancellations	(12)	(6)
Removals and transfers out	(46)	(50)
Number participating at end of month	5 716	5 710

Claims - Disability Benefits (d)		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	175	163
Daily Hospital Expense Benefits	175	151
Special Hospital Services	196	182
Surgical Operations Benefit	143	133
Physicians Attendance	37	-

(c) Current month statistics includes 264 insured employees not active on the payroll while prior month statistics includes 266 insured employees not active on the payroll.

(d) Statistics cover only claims paid and not all claims incurred during the month.

1197899

Payroll Section (continued)

Employee Benefit Plans (continued)

Claims - Disability Benefits (continued)	October	September
Dependent Benefits		
Daily Hospital Expense Benefits	243	205
Special Hospital Services	320	293
Surgical Operations Benefits	294	263
Amount of claims paid by insurance company:		
Employee Benefits	$37 499	$31 676
Dependent Benefits	38 000	31 521
Total	$75 499	$63 197

Number of Disability Claims Forwarded to Insurance Company

Hospital Benefits		
Kadlec Hospital	588	477
Other Hospitals	116	122
	704	599
Weekly Sickness and Accident Benefits	191	154
Total	895	753

Claims - Death Benefits (a)	October	Total to Date
Number	3	103
Amount	$19 000	$606 513

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of October 31,1952, 4 employees who are absent due to total disability are still participating in the Group Life Insurance Plan. They were not actively at work December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work.

Vacation Plan

Number of employees granted permission to defer one week of their 1952 vacation to 1953

	October			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	3	5	8	48	59	107
Manufacturing	5	2	7	159	57	216
Utilities and General Services	4	6	10	166	38	204
Community Real Estate and Services	0	0	0	36	18	54
Financial	2	1	3	19	3	22
Employee and Public Relations	0	1	1	1	4	5
Radiological Sciences	1	0	1	5	7	12
Medical	1	0	1	7	1	8
General	0	0	0	0	1	1
Total	16	15	31	441	188	629

(a) Total to date includes all claims under the old and new Insurance Plans and 8 deaths on which accidental death benefits were paid.

Payroll Section (continued)

Employee Benefit Plans (continued)

U. S. Savings Bonds	October	September
Number participating at beginning of month	4 305	4 308
New authorizations	81	94
Voluntary concellations	(43)	(55)
Removals and transfers out	(38)	(42)
Transfers in	-	-
Number participating at end of month	4 305	4 305
Percentage of Participation		
G. E. Employees Savings and Stock Bonus Plan	43.3%	43.2%
G. E. Savings Plan	10.6%	10.5%
Both Plans	49.1%	49.0%
Bonds Issued		
Maturity value	$234 025	$232 475
Number	4 342	4 214
Refunds Issued	101	73
Revisions in Authorizations	60	80
Annual Going Rate of Deductions		
G. E. Employees Savings and Stock Bonus Plan	$1 680 992	$1 665 849
G. E. Savings Plan	458 303	460 579
Total	$2 139 295	$2 126 428

Withdrawal of U. S. Savings Bonds from G. E. Employees Savings and Stock Bonus Plan	October	Year to Date
Number of participants withdrawing Bonds	121	1 240
Maturity value of U. S. Savings Bonds withdrawn	$42 905	$431 635

Check-off of Union Dues

Number of Payroll Deduction Authorizations in Effect	10-31-52	Cancellations And Terminations	Additions	9-30-52
Hanford Atomic Metal Trades Council	1 364	19	38	1 345
Building Service Employees International Union, Local 201 (Medical Department Employees)	24	1	-	25
Hanford Guards Union, Local 21, of the International Guards Union of America	237	8	1	244
Total	1 625	28	39	1 614

1197901

Payroll Section (continued)

Employees Who Have Entered Military Service

	Total to Date		
	Called to Duty	Volunteered for Duty	Total
Reserve Officers	35	3	38
Enlisted Reserve	53	6	59
National Guard	6	-0-	6
Selective Service	66	-0-	66
Voluntary Enlistments	-0-	107	107
Total	160	116	276

Number of Rent, Telephone and Hospital Deductions from Salaries	October	September
House Rent	5 062	5 351
Dormitory Rent	882	967
Barracks Rent	154	175
Trailer Space Rent	163	152
Telephone	3 686	3 694
Hospital	625	505
Total	10 572	10 844

Annuity Certificates (for duPont Service)	October	Total to Date
Number Issued	1	95

Suggestion Awards		
Number of awards	36	1 743
Total amount of awards	$1 930	$34 940

Employee Sales Plan

	October		
	Major Appliances	Traffic Appliances	Total
Certificates Issued	29	234	263
Certificates Voided	1	5	6

	October	Year to Date
Applications for normal retirement pensions	8	38
Applications for optional retirement pensions	2	8

Patent Award Payments

Number of award	1	10
Amount	$25.00	$250.00

% Absenteeism	October	September
Weekly - Men	2.51%	2.14%
Weekly - Women	4.39%	3.49%
Total Weekly	2.98%	2.48%
Monthly	1.46%	1.22%
Grand Total	2.55%	2.19%

1197902

Payroll Section (continued)

Salary Checks Deposited	October Weekly	October Monthly	September Weekly	September Monthly
Richland Branch - Seattle-First National Bank	736	904	707	888
North Richland Area Office - Seattle-First National Bank	12	6	13	6
Richland Branch - National Bank of Commerce	515	362	500	350
Out of state banks (Schenectady Staff)	-0-	1	-0-	1
Total	1 263*	1 273	1 220**	1 245

* Week ended 10-26-52
** Week ended 9-28-52

Special Absence Allowance Requests	October	September
Number submitted to Pension Board	3	2

GENERAL COST SECTION
MONTHLY REPORT

October, 1952

Operating cost reports for the month of September were issued on October 20, 1952 and included year to date totals for operations during the 1st Quarter of FY 1953 which will be used as a basis for preparation of the Mid-Year Budget Review. Supplementing the cost reports, analysis letters were issued to Managers explaining the changes in costs from the prior month and comparing costs for the first quarter with amounts budgeted for this period.

Consolidated Cost and Budget

Work in connection with the Mid-Year Budget Review was intensified during the month. Manpower requirements were completed and submitted to the Appropriations and Budget Committee for approval early in October.

Instructions were issued to accountants covering budgets for construction projects, and a complete summary was issued covering requirements for operations, equipment and inventory budgets. A time schedule for submittal of departmental budgets was also established.

Conversion to IBM of the cost distribution of payroll was made effective with week ending October 5. In the early stages considerable difficulty was encountered but this is rapidly being overcome and it is expected that this distribution will be on a current basis by the end of December.

Utilities and General Services Cost

The transfer to the revised coding system effective October 1 was accomplished with a minimum of confusion despite the considerable work required in recoding all active work orders, expense codes and equipment listed on IBM tabulations, and the conversion of ledgers and liquidation records to the new codes. The operating report form was also revised and new forms will be available for October reports.

In order to expedite issuance of charges to other departments and to save typing time at a critical period, copies of liquidations for Telephone, Printing, Duplicating and Office Machine Repair are being forwarded to Duplicating Unit in scroll and the necessary copies made through use of xerography.

At the request of the manager of the Utilities and General Services Department, all reports issued by the Financial Department with respect to the Utilities and General Services Department are now clearing through the Financial Advisor in order that they may be personally reviewed with the manager.

Community Real Estate and Services Cost

The Landlord Report was completed and distribution made on October 15, and a study is now underway to determine the cost of preparation of this report.

The procedure for handling undistributed costs was revised so that by use of accruals, a full month's costs are allocated to applicable categories of expense, thereby effecting a marked reduction in the balance previously carried as undistributed.

All data relative to the Mid-Year Budget Review has been received back from managers and work of final preparation is progressing favorably. It is expected that established due dates will be met without difficulty.

MANUFACTURING COST SECTION
OCTOBER, 1952

BUDGETS AND SPECIAL REQUESTS

The procedure for preparation of the Operating Budget for the Manufacturing Department was completed and distributed for use in completing future budgets.

A good start was made on the preparation of the Mid-Year Budget Review for FY 1953 during the month of October. Calculation of salaries and checking of material units and liquidations was completed.

The breakdown of the Second Quarter of the Revised FY 1953 Budget was completed and will show on the Operating Reports for October and November.

MAINTENANCE AND PLANT IMPROVEMENT

The Plant Improvement and Unusual Maintenance expense budget was completed except for minor revisions to be made as a result of reviews. A meeting was attended on October 29th with members of the Engineering Department, Section Managers or their representatives and Manufacturing Department Staff. The purpose of this meeting was to review the expenditure pattern of each project or budget item included in the Engineering Department Construction Budget. This review gave us an opportunity to correlate the Plant Improvement Budget with the Construction program.

There was a noteworthy improvement in method of checking codes on weekly time cards in October. The actual time cards are now received from the computing unit on Tuesday morning and normally the checking is completed by Wednesday at 4:45 P. M. It is anticipated that this will eventually be completed on the same day received. The quality of the payroll reports received from the computing unit indicated considerable improvement over September.

PRODUCTION COST ACCOUNTING

The inventory value of Chemical 72-60 at July 1, 1952 was established and the necessary entries made through General Ledger to include it in the Work in Process Inventories. Billings were made to cover shipment of Chemical 72-60 for July, August, September and October.

Standard billing prices on all of our major products were lowered during the month of October to bring them more in line with our current unit costs.

1197905

PRODUCTION COST ACCOUNTING (Continued)

Several changes were made in the Production Cost accounting records in October to prove method of reporting. These included:

(1) Reserve for price adjustment was established on billets.
(2) Increased scrap credit on Redox Uranium process to a more realistic figure.
(3) Reduced scrap value of 234-5 inactive materials on current basis only. No change in present inventory values.

REPORTS AND RECORDS

Manufacturing Department Operating Report Forms were partially revised and designed to be published on Multilith rather than Ditto as in the past. These new forms were reviewed with and approved by the Accountant for the Manufacturing Department. The new form will be made effective with November reports.

Operations Unit Codes in Separations Section Operations Unit were revised to conform with payroll suffix to provide an addtional control and balancing factor for the payroll cost distribution.

METAL PREPARATION ACCOUNTING

A weekly man-hour variance report has been established on two Operations Unit Processes during October. This report will reflect the difference between allowable or standard man-hours of direct labor and actual hours required. This is being presented in a graphic manner to Operating Supervision.

REACTOR SECTION ACCOUNTING

Budget data for FY 1953 Mid-Year Review was reviewed and forwarded to the Manufacturing Department Staff Services office according to schedule.

A compilation of power costs for the 100 Areas broken down between pumping and treatment costs by area was made for the Technical Section at their request. This information is to be used for comparative evaluation by the Engineering Department.

Participated in good housekeeping inspection with the Power and Maintenance and Operating Units.

Assistance was rendered in compiling the Reactor Section semi-annual report - Landlord Properties.

SEPARATIONS SECTION ACCOUNTING

A special report was prepared for the Section Manager showing the over-all unit costs of the Redox Plant. The Unit Costs were broken down by Manufacturing, Process Control, Protection of Plant and Personnel, General and Administrative, Uranium value and depreciation. Similar reports will be prepared for the other plants.

Considerable time was spent on a redistribution of steam and water charges to the various customer units.

A special cost study indicating distribution of labor costs by foreman responsible was submitted to Power and Maintenance Superintendent.

1197906

SEPARATIONS SECTION ACCOUNTING (Continued)

Considerable help was given to the Separations Section in compiling the Semi-annual Landlord Report.

Information for the FY 1953 Budget Review was submitted to the Staff Services Office on or before the due dates.

1197907

ENGINEERING COST SECTION

DESIGN COST

During the period, personnel data was completed for the Fiscal Year 1953 Midyear Budget Review, and submitted to the Appropriations and Budget Committee. Other budget information was prepared for the Midyear Budget Review, including schedule of charges to and from other Departments, average salary cost schedules, and detail of other costs.

First quarter Fiscal Year 1953 costs were recast to conform with uniform code system. Much effort was expended in correction of erroneous coding of personnel time distribution, store orders, and other costs. Better coding is expected as the result of an education program in the Design Section.

Design Order Costs recording has been converted from a card file to ledgers which will furnish a more adequate control of fiscal year and total to-date costs.

PROJECT COST

Preparation of the Midyear Budget Review continued during the month. Personnel figures were revised to reflect manpower ceilings established by the A & B Committee. Charges between Nucleonics Division Departments were reconciled and the operating budget was nearly completed at the end of the month. A schedule of construction and plant improvements projects which are estimated to be started in Fiscal Year 1954 and are not included in the Fiscal Year 1954 budget and projects, the estimated cost of which exceed by 35% the amount included in the 1954 budget, was submitted to the A & B Committee.

Loaned labor within the Engineering Department was assessed this month at the standard rate of the lending unit rather than at Salaries plus Continuity of Service as in the past, and a new account was established to accumulate the costs of Project Services Administration.

All Project Section reports for the month of September were issued by October 15, 1952. Financial Closing Statements on the following projects and informal requests were issued during the month:

CA-430 Improvement of Lighting - 703 Building
CA-460 Installation of Asbestos Siding and Painting Wood Trim-272 E & W
IR-112 224 Waste Diversions, 200 East and West Areas
IR-120 Underbuild of Bonneville Power Administration 13.8 KV Riverland-Midway Power Line.
IR-121 Exhaust System Alterations - 716 and 1131 Garages

TECHNICAL COST

Effective October 1, 1952, the method of distributing Technical Section's labor and overhead costs was changed. Previously, Technical Section has been on the applied system for cost distribution. Now cost is being distributed at standard rates per hour of work.

1197908

ENGINEERING COST SECTION

TECHNICAL COST (Cont.)

Employees of the Section have been grouped into nine categories and a rate has been developed for each category in each Unit of the Section. The rate includes labor and indirect expense only. Applied material and service costs applicable to specific Research and Development Studies or Processes are not included within the standard rate.

Coincident with the change over to the use of standard rates, the Uniform Cost Coding system was adopted. This resulted in changing practically every code in use and required a great deal of time to accomplish the task.

During October the usual cost reports were issued to Technical Section followed by the letter of analysis. All cost report forms were then reviewed and revised as necessary to take the changes in cost codes and accounting methods into consideration.

Preliminary work on the Midyear Budget Review has been completed according to schedule. Preliminary forms were designed and distributed to Technical Section, historical cost figures were worked into the required form, personnel figures were approved and operating budget calculations have been started.

1197909

INTERNAL AUDIT SECTION
MONTHLY REPORT
OCTOBER 1952

A report was issued covering an audit made at Olympia, Washington, of procedures for and records of payments made under Contract No. W-7412-Eng-25 with the Department of Labor and Industries of the State of Washington. Payments are made by the State for medical aid, industrial insurance and pension awards, in connection with industrial accidents, from funds deposited by General Electric in the Richland Branch of the Seattle-First National Bank.

A control procedure for stores documents was developed to assure that inventory transactions are completed and journalized within a reasonable time after the documents have been prepared. The Internal Audit Section will aid Stores personnel in the installation of the procedure.

A new procedure covering Memo Employee Sales was established by Stores Unit. The procedure incorporated our recommendations to correct inadequacies in the control of material charged to employees on a memo basis.

The Atomic Energy Commission rejected our proposal to use the General Electric telegraph network for outgoing messages. The Commission is now using the facilities of the General Services Administration telegraphic network for which they claim comparable savings in addition to administrative advantages.

Auditing personnel assigned to Payroll Section to assist in developing routines for IBM payroll preparation completed their assignment during the month. Assistance was given on (1) records and routines for control of checks, (2) routines for handling payroll adjustments and for summarizing and verifying weekly payrolls, (3) accumulating year-to-date payroll totals, and (4) bringing disbursement reports up to date.

At the request of Purchasing and Stores Section, an audit of development costs incurred by Industrial Tectonics, Inc., on General Electric purchase orders HWC 13814 and HWC 13815 was made at Ann Arbor, Michigan, on October 23 and 24, 1952. Approximately one-half of the total quantity on these two orders was cancelled and the audit was made to determine the propriety of the development costs charged General Electric.

Audits of the records and routines for the General Electric Employees Savings and Stock Bonus Plan and for the control of weekly payroll checks were begun in the Payroll Section. An audit was also begun of the records and routines established for controlling and accounting for surplus, salvage and scrap sales.

An internal auditor attended the eleventh annual conference of the Institute of Internal Auditors held October 19-21, 1952, in St. Louis, Missouri.

1197910

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - OCTOBER 1952

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	9	8		1 (a)
Patrol and Security	614	616	2 (b)	
Safety and Fire Protection	146	153	7 (c)	
Office Services (Laundry and Building Services, Clerical Services, Records Control and Procedures Analysis)	327	332	5 (d)	
TOTALS	1,096	1,109	14	1

NET INCREASE: 13

(a) - Staff
1 - Transferred out

(b) - Patrol and Security
9 - Transferred in
2 - Deactivated
2 - Transferred out
3 - Terminations

(c) - Safety and Fire Protection
8 - Transferred in
1 - Deactivated

(d) - Laundry and Building Services
1 - New Hire
1 - Transferred in
1 - Deactivated
2 - Terminations

Clerical Services
8 - New Hires
1 - Transferred in
1 - Deactivated
2 - Transferred to other Departments
1 - Termination

Procedures Analysis
1 - New Hire

1197911

SAFETY AND FIRE PROTECTION UNIT

Injury Statistics

	SEPTEMBER	OCTOBER	YEAR TO DATE	COMPARATIVE PERIOD 1951
Major Injuries	2	1	14	5
Sub-major Injuries	1	1	19	17
Minor Injuries	355	462*	3,855	3,103
Exposure Hours	1,394,435	1,528,320	14,690,491	14,369,444
Major Injury F/R	1.43	0.65	0.95	0.35
Major Injury S/R	0.030	0.009	0.061	0.033
Penalty Days	0	0	375	450
Actual Days Lost	42	13	524	23
Minor Injury F/R	2.55	3.02	2.62	2.16
Estimated Medical Treatment Time Required	1,428 hours	1,856 hours	15,572 hours	12,548 hours

*56 were observation cases to determine extent of exposure to chlorine gas.

Industrial Fires

	Area	No. of Fires	Cause	Loss
Engineering Department	200-W	1	Combustibles too near heat or flame	None
Engineering Department	200-W	1	Smoking or matches or burning and welding	None
Manufacturing Department	300	1	Process	$25.00
Utilities & Gen. Services Dept.	300	1	Automotive Fire	$50.00
Engineering Department	300	1	Process	None
Manufacturing Department	300	1	Process	None
Utilities & Gen. Services Dept.	700	1	Electric	None

Fire Protection Activities

No building surveys were completed during the month due to special activity of Fire Prevention Month.

The Fire Protection Engineers conducted thirty-one safety meetings.

Building evacuation drills were conducted in all buildings having evacuation signals except those in the 700 Area.

The new 100-C Area was checked and unsatisfactory conditions brought to the attention of supervision.

The installation of additional First Aid fire appliances for 202-S and 234-5 buildings has been completed.

1197912

The storage hutment for restricted waste material of 234-5 is completed except for the automatic CO^2 system.

Nine new employees were given fire orientation.

A 4" transite water line from the Army installation southeast of the 200-East Area is being connected to 4" water line that supplies water to the Badge House and Patrol Headquarters of 200-East Area.

The water has been turned in to the New Works Laboratory Area.

All areas organized special area inspection committees that combed the areas for fire hazards.

The Fire Department gave nine demonstrations all in different areas throughout the plant. The demonstration consisted of a talk on fire prevention, a demonstration of the operation of 2½ gallon water pump can, 10 lb. CO^2, 4 lb. dry powder and the extinguishing of a fire in a shack by the Fire Department. A total of 1,225 people attended these demonstrations.

Fire Prevention articles were prepared for the plant paper for each issue during the month.

Safety Activities

A near-serious accident occurred in the 105-C Building in the new 100-C Construction Area on October 3 when the U.S.W. Plumbing subcontractors attempted to chlorinate the sanitary water lines in the 105-C Building with raw chlorine gas. This gas escaped through open faucets which necessitated evacuating the building. There were 56 employees sent to Medical for observation of evidence or extent of exposure to the gas fumes, all cases were discharged the following day. Of the 56 cases, 20 were operations personnel.

The Safety Engineer in the 300 Area attended the scoping meeting of Program X in that area and presented safety features for this program.

The Metal Preparation Section has continued the ten minute weekly safety meetings in the 300 Area. This improvement in their safety program is in accordance with the intent and purpose of the Nucleonics Safety Council findings and is showing beneficial results in eliminating many of the violations of safety rules and unsafe acts.

A meeting with the Kaiser Company and AEC representatives was held for the purpose of establishing contact personnel in expediting elimination of such unsafe practices that might arise.

Special articles are being prepared for the Works NEWS and Safety Topic of the Month that emphasize the Nucleonics Safety Council's recommendation to hold safety meetings that remind the employees of the hazards associated with the various jobs.

The Separations Section Safety Stampede is progressing very well. Good publicity and individual participation in improvements in housekeeping have so far made the Stampede a thing of interest in the 200 Areas.

1197913

OFFICE SERVICES

Laundry and Building Services

Plant Laundry (200-W Area)	September	October
Pounds Delivered	182,621	164,825
Pounds Rewash	5,891	4,180
Total Dry Weight	188,512	169,005

700 Laundry		
Flatwork - Pounds	38,233	36,108
Rough Dry - Pounds	18,088	19,171
Finished - Pounds	2,583	2,409
Estimated Pieces	77,164	75,571
Total Dry Weight - Lbs.	58,904	57,688

Monitoring Section - Plant Laundry		
Poppy Check - Pieces	147,391	142,418
Scaler Check - Pieces	196,272	190,711
Total Pieces	343,663	333,129

Clerical Services

Central Mail

The total volume of internal and postal mail again showed a sharp increase over previous months, indicating the accelerated construction programs are beginning to show their effects on our work load. The number of teletypes handled also showed a sharp increase caused primarily by increased activities in Engineering Department and Purchasing Section.

Types and Pieces of Mail Handled	October	September
Internal	1,317,921	1,194,148
Postal	102,245	76,510
Special	1,580	1,579
Total Mail Handled	1,421,746	1,272,237
Total Postage Used	$3,245.50	$2,249.70
Total Teletypes Handled	3,896	3,078
Total Store Orders Handled	366	331

Addressograph

Two additional sets of plates were prepared by Addressograph during the month including one of 500 plates for instrument engineers and one for plant engineering graduates consisting of approximately 1,500 plates. Preparation of these two lists will eliminate many hours of typing, which was the previous method used to address and send out material to these groups.

With each passing month, additional requests are being made to furnish addressograph service primarily because this service could not be guaranteed when the addressograph equipment was being used for preparation of weekly payrolls. Now that this service is available, many departments are finding it most economical and convenient to set up repetitive type mailing lists using this medium.

	October		September	
Type of List	Number of Runs	Total Copies	Number of Runs	Total Copies
Plant Name List	96	157,386	96	112,430
Housing List	12	74,749	12	71,610
Payroll List	5	17,561	6	25,118
Total New Plates	4,896		5,618	
Total Corrected Plates	3,286		Not Recorded	

Office Equipment

Progress has been made during the month to eliminate the safety and fire hazards in the furniture warehouse. The condition was alleviated somewhat through the cooperation of Stores personnel offering facilities in adjacent warehouses not being fully utilized. This permitted the movement of some of the new equipment still in crates, from the present warehouse to their space on a temporary basis.

The plantwide utilization survey of office machines was concluded on October 14. Results of this survey were most encouraging, resulting in an approximate savings in equipment of $104,000. This represents the valuation of all machines picked up and released voluntarily in the course of this survey. The complete report showing the detailed information accumulated during this survey is being prepared and will be available shortly for reference.

Orders are now coming in for the new facilities in 100-C Area and deliveries started during this month. Kaiser Engineering Company is being furnished with furniture even though a formal budget listing their requirements has not been received. This is being done to aid the AEC in taking care of the more urgent requests of Kaiser Company, and it is anticipated that their budget will be forthcoming shortly which will provide funds for obtaining furniture requirements for Kaiser.

An additional Serviceman was hired during the month to assist the Checker in the North Richland Warehouse. The addition of this employee will make it possible to maintain better housekeeping, fill orders more promptly, and engage in a more extensive preventative maintenance program on used furniture.

The AEC purchased approximately $6,000 worth of office furniture and turned it over to us for distribution as needed by them.

Office Machine Repair	October	September
Office Machines Repaired in Shop	187	162
Office Machine Service Calls	557	477
Machines Picked up by Survey	36	62
Total Machines Services	780	701

Central Printing

The volume of printing again showed a sharp increase over the previous month. This continued increase in production emphasizes the accelerated activities caused by the expansion program.

Much of the work for the month was on a priority or emergency basis, consisting of several issues of news letters produced on an overtime basis.

Work Completed	October	September
Orders Received	437	438
Offset Orders Completed	384	334
Offset Copies	1,358,583	1,336,843
Letter Press Completed	58	51
Letter Press Copies	55,512	34,267
Orders on Hand	104	113
Negatives Masked	465	381
Negatives Processed	812	601
Zinc Plates Made	329	422
Photo Copy Prepared	528	213

Stenographic Services

The Steno Pool has enjoyed a sharp increase in work since a more favorable hourly cost rate has been established through cooperation with the Financial Department. Now that the rate of $1.90 per hour has been established, many customers who previously felt it was cheaper to bring their own employees in on an overtime basis are now sending their work to the Steno Pool and finding the service highly satisfactory. The biggest difficulty in Stenographic Services is maintaining a sufficient number of employees. Through conferences held with Employment, it is being pointed out that there is a critical need for a constant supply of new stenographers.

1197916

During the month, Stenographic Services personnel at one point was reduced to nine employees, marking the lowest number of personnel in the Steno Pool since its inception.

Breakdown of Hours	October	September
Dictation and Transcription	13.5	3.5
Machine Transcription	25.0	59.0
Letters	14.5	18.5
Rough Drafts	130.0	69.5
Stencils, Dittos, and Duplimats	266.0	233.0
Miscellaneous	965.5	429.5
Meeting Time	8.5	3.0
Training Time	77.0	413.0
Holiday and Vacation Time	0.0	104.0
Unassigned Time	42.0	16.0
Total	1,542.0	1,349.0
Employees Loaned to Other Departments	842.0	926.5
Total Hours Available	2,384.0	2,275.5

Area Mail and Duplicating Services

An additional Model "80" duplicator was placed in the 760 Building which enables better keeping up with the work load there resulting from the large increase in duplicating coming in from the Engineering Department.

Now that the operators have had a few months experience, it is found that in most of the operations work is kept on a current basis and while-you-wait service performed with the exception of possibly two or three days during the month when peak periods occur due to simultaneous requests by most of the using departments for monthly reports, cost distributions, etc.

Mail Statistics	October	September
Total Internal Mail Handled	297,286	150,000
Duplicating Statistics		
Orders Received	2,807	1,919
Orders Completed	2,815	1,948
Orders on Hand	45	193
Offset Plates	15,586	9,927
Offset Copies	1,122,716	650,032
Stencils	944	310
Stencil Copies	45,690	9,373
Ditto Masters	871	627
Ditto Copies	20,177	14,979
Xerox Plates	1,305	634

1197917

Records Control

Quantity of records received, processed and stored:

Community Real Estate & Services Department	6	Standard	Storage	Cartons
Employee & Public Relations Department	5	"	"	"
Engineering Department	61	"	"	"
Finance Department	59	"	"	"
Manufacturing Department	58	"	"	"
Radiological Sciences Department	5	"	"	"
Utilities & General Services Department	39	"	"	"
TOTAL	233	Standard	Storage	Cartons

Persons provided records service:	694
Records cartons issued:	312

Percentage of Records Service Center Vault occupied by records is 98.9% excluding Civilian Defense portion.

Fifty requests for file cabinets were received. Forty-five requests were filled and five requests were cancelled resulting in a savings of $375.00.

Three combination locked cabinets were exchanged by substituting key locked cabinets resulting in a savings of $375.00 ($200.00 cost of combination cabinet minus $75.00 cost of key locked cabinet equals $125.00 savings per cabinet exchanged. Three key locked cabinets were picked up with no exchange resulting in a saving of $600.00.

Uniform filing was established in seventeen offices during the month. A total of 365 offices have installed the uniform filing system to date.

The Remington Rand, Inc. has completed 343 reels of microfilm or 1,269,100 images to date. Two hundred and forty-two reels were developed and returned as completed.

Twenty-two evaluation of records for disposal were completed with General Electric internal approval. Seventeen evaluation of records for disposal were approved by the Records Committee. Eleven additional evaluation of records for disposal were developed and submitted for internal departmental approval.

Procedures Analysis

	September	October
Printing Orders Received	478	487
Printing Orders Rejected	24	17
New Form Numbers Assigned	100	97
Forms Designed	98	68
Suggestions Processed	11	5

There were 58 new permanent form numbers and 39 new temporary form numbers established during the month of October.

1197918

The procedure study analysis of Classified Files Technical Services Unit, has been completed in the first phase of study. The final draft of the report has been completed and distributed. Phase 2 of this procedure study will commence when the final comments are received from the recipients of this report.

The procedure study on the Suggestion System has been completed and is now in the process of final draft preparation. This final draft covers all three phases of the study; (1) internal procedures (2) filing procedures (3) report preparation procedures.

An investigation has been made concerning the forms presently being used by the Excess Materials group. One of the operations reviewed consists of four individual form letter type forms. They are as follows:

1. Form letter bid acknowledgement
2. Form letter bid request
3. Form letter bid rejection
4. Invitation to bid

These forms were 8½"x 11". They were all consolidated into one form, 8½" x 11", and placed on a paper master. The typing operations were reduced considerably by the use of this one form to perform all functions. In addition to this, the use of the window envelope was recommended to eliminate the laborious typing of addresses. Filing operations will reduce by two thirds.

Savings Realized for October	One Time	Annual Recurring
Forms Control	$1,350.00	$3,242.00
Total savings for the previous month	$ 6,554.00	
Total Savings for October	4,592.00	
Accumulated Savings from 1-1-52	102,579.00	

SECURITY AND PATROL

Document Report

Number of technical and scientific documents reported unaccounted for October 1:	292
Documents (technical and scientific) reported unaccounted for during October:	5
Documents (technical and scientific) reported found during October:	19
Number of technical and scientific documents unaccounted for October 31:	278
Number of non-technical documents unaccounted for October 1:	49
Documents (non-technical) reported unaccounted for during October:	3
Documents (non technical) reported found during October:	9
Number of non technical documents unaccounted for October 31:	43
Total number of non technical and technical and scientific documents unaccounted for October 31, 1952:	321

1197219

During the month of October, representatives of Security Patrol spent 210.1 manhours searching for unaccounted for documents listed on a recapitulation issued to each file custodian throughout the plant. Through the efforts of the custodians and the Audit and Inventory Group, the following seventeen documents were located and accounted for:

HW 8833	copy 2A	HEW 7876	copy 1A
HW 9985	copy 1A	3-3427	copy 8A
HW 10469	copy 11A	H-1-21400	copy 53A
HW 11416	copy 15A	HDC 901	copy 10A
HW 11436	copy 1A	MP 235	copy 2-TE
HW 19056	copy 1A	SK-2-6,220	copy 136
HW 20072	copy 13A	SK-2-50,000	copy 105
HW 21928	copy 37A	SK-2-50,006	copy 75
HW 23470	copy 10A		

In the above mentioned recapitulation list, there were eleven documents declassified. These documents are as follows:

HW 8693	HW 10709
HW 9011	HW 12937
HW 9514	HW 19602
HW 10549	7-5067
HW 10674	7-5190
HW 13052	

The Non Technical Document Review Board held eight meetings during the months of September and October, but due to material being retained, the results for the meetings of both months are recorded below:

Of the 407 documents reviewed

78 had their classification cancelled
188 documents had their classification retained
121 documents were downgraded to "Restricted"
10 were not within the scope of the Board and
10 were referred to the Coordinating Organization Director

There were nine security violations during October committed by General Electric personnel involving improper storage of classified material.

Security Education

There were 339 Security meetings held during the month and attended by 4,502 employees of the General Electric Company. A representative of the Security Unit showed one of the security films at some of these meetings as shown below:

"Fitting 'U' Into Security" was shown at one meeting with thirty-five people in attendance.

"Sabotage" was shown at two meetings with approximately seventeen employees in attendance at each meeting.

"The Case of the Smokeless Chimney" was shown at one meeting with twenty-two people present.

"The Man on the Left" was shown at four meetings with an average attendance of thirty-nine people at each meeting.

"Only The River" was shown at three meetings, with an average attendance of 24 employees per meeting.

"The Defense Rests" was shown at 24 meetings, each with an average attenance of 23 people, or a total attendance of 552 employees.

GE Security Bulletin No. 68 entitled "The Easy Way" was issued and distributed October 25.

One-hundred copies of the security poster with the slogan "Protect Your Job" were posted in all the plant areas during the month of October.

One thousand, two hundred and fifty leaflets with the slogan "Protect Your Job" were distributed to the plant areas during October.

On October 17, the security requirement for the accountability of reproductions classified as "Restricted - Security Information" issued by the Blueprint Reproduction Office was cancelled. Organization and Policy Guide 15.19 is being revised so as to eliminate this previous requirement.

The new security film entitled "Signal 99" was nearly completed at the close of the month, and will be released for showings during November, 1952.

Ninety-four employees of the General Electric Company received a "Q" security orientation talk from either a representative of the Security Unit or an Area Patrol Captain during the month of October.

The names of 44 people were forwarded to the Atomic Energy Commission during the month for emergency "Q" clearance processing. Of this number, approximately forty cases were for engineers of the Aerojet Engineering Corporation, Azusa, California, who will be assigned to the General Electric Company at Hanford on an engineering assistance program.

Statistical Report of Security Patrol Activities

	100-B	100-D	100-F	100-H	200-E	200-W	300
Pat Searches	93	93	93	93	89	147	6
Escorts	88	33	20	106	66	54	86
Ambulance runs	7	1	6	3	3	2	3
Passes issued:							
One day temporary	14	22	14	10	17	72	32
Travel	0	0	0	0	0	0	64
Red Tag	227	214	269	31	176	923	190
Telephonic	0	8	0	1	0	0	20
Supervisors' post contacts	436	430	539	374	399	1,472	924

Other Security Patrol Activities

Buildings and doors opened:	227
Railroad Gates Opened:	155
Master System Keys Issued:	137
Operation gas pumps:	110

	100-B	100-D	100-F	100-H	200-E	200-W	300 & 3000	700
Security File Check	185	145	522.5	357.6	120	198.5	700	2,160
Security Building Check	221	599	983.7	511.6	107	150	125	
Special Document Search		41		69.6		19.5	80	

Arrest Report

Violation	Number of Violations	Cont. Cases From September	Cases Cleared	Pending	Fined
Speeding	3	0	3	0	3
Negligent Driving	3	0	3	0	3
Illegal Parking	15	0	15	0	14
	21	0	21	0	20

Citation Tickets Issued: 21
Warning Tickets Issued: 1
Verbal Warnings: 8

Training courses were received at the Training School during the month by 321 Security Patrolmen as follows:

Ordnance Class	6 hours
.38 caliber revolver	1 1/2 hours
Health Class	1/2 hour

Security Patrol Post Changes

Effective October 14, a new post, a temporary headquarters with radio, was activated at 100-K Area, with one man on duty twenty-four hours. On October 29 there was another man added to this post.

Security Field Inspection Activities

Contacts made to locate unaccounted for documents:	26
Searches conducted to locate unaccounted for documents:	7
Documents located:	17
File combinations overdue and custodians advised to change them:	30
File combinations changed:	9

General

Effective October 1, Operations Order I-235, Revision No. 2, was issued providing instructions that personnel who have the "B" and "C" type badges will not be required to register anymore when either entering or leaving the area at shift change time.

At approximately 3:15 P.M., October 3, 1952, the Security Office was advised that chlorine gas had escaped into the 105-C Process Building, 105-C Area, during a flushing process of the sanitary water lines. This necessitated the evacuation of the entire 105-C Building. Arrangements were made immediately so that the 105-C Exclusion Area fence was declared the area boundary, thus eliminating the patrol post within the building.

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Operations Order I-190, Revision No. 4, was issued October 6. This instruction provides that a signed statement known as "Air Space Violation Report" will be submitted by all Security Patrol personnel who witness the flight of unauthorized aircraft over the Hanford Works Area. This violation report will be used as evidence against these operators when charges are placed by the Civil Aeronautics Administration.

On October 10, Operations Order I-265, Revision No. 1, entitled "Control of Construction Contractor's Privately Owned Property" was issued. This provides that the special signature of personnel approved to authorize passes for such material will be listed at all Patrol Barricades.

Operations Order I-218, Revision No. 3, was issued October 14, issuing instructions whereby the Atomic Energy Commission Air Patrol and the United States Army will resume the responsibility for inspection of all perimeter fences across the Columbia River.

A radio was installed at the Richland Barricade on October 14 for communications at that post.

On October 15, Operations Order I-270, was issued entitled "Area Description for Visitor Passes, White Photo Passes and Construction Employees' Temporary Tag Passes". This order establishes a uniform method of describing areas and buildings for which personnel in possession of these passes are to be cleared.

Effective October 17, part of the Process Engineering Unit, Engineering Design Section, which is concerned with Purex Process Design Development, established its offices in the 101 Building, 3000 Area, and because of the security significance involved, Security Patrol was instructed to maintain a higher degree of security checks in this building, in order to assure the proper protection of "Restricted Data" involved.

Operations Order I-2, Revision No. 8, was issued on October 20, 1952 providing that Construction Employees' Temporary Tag Passes are to be valid only in the areas designated on the passes.

Effective October 20, Operations Order I-208, Revision No. 8, was issued deleting the Employment Temporary Card Pass as a valid pass for authorized entry into the Hanford Works Areas.

The 105-C Exclusion Area was established as a health area at 8:00 A.M., October 20. Everyone entering the area would then be required to wear a construction type health badge and pencils.

The new "slip on" badge frame for area health badges was placed in use on October 20. This frame will eliminate the need for mechanical badge assembly and permit reusing badge frames several times. At the same time, the "bulldog" spring type clip was being substituted for the pin type clip on the back of the area badges.

The ADT cable and the direct wire from Patrol Headquarters, 200-W Area, were broken at 8:30 A.M., October 22, by a truck driven by subcontractor personnel working in the area. Additional patrolmen were immediately posted within the 234-5 Building during the entire period that the system was not in operation. Normal service was restored on the alarm system at 9:30 P.M. this same date.

On October 23, a memorandum was issued by the Security Office regarding the inclusion of the 105-C Exclusion Area within the 100-B Area proper as of November 3, 1952.

On October 27, the waste storage hutment, 234 Area, 200-W, was placed on the alarm system.

Station WGMB-15 was established at 100-K Area Construction site on October 27 when the temporary Patrol Headquarters were set up.

The corridor into 200-E Area to permit construction of the new 101 Building on an unclassified basis was opened at 8:00 A.M. on October 27.

During the period October 28 through October 31, work was completed on the final arrangements to include the 105-C Building and its supporting facilities with the 100-B "limited" area on November 3, at 2:00 A.M. The Manufacturing Reactor Section assumed responsibility for operation of this process area on October 31, 1952.

The following number of employees attended the Special Bomb Disposal Class which began October 2, 1952 at the Training School: Security Patrol personnel - 307; Atomic Energy Commission personnel - 35; Manufacturing Department personnel - 12; and Plant Safety and Fire personnel - 1.

A total of 597 photo identification passes were laminated and issued during the month.

"A" badges assembled and distributed to the proper areas - 492.

A total of 2,267 badge transactions were made on the daily telephone log during October - 2,037 additions and 230 withdrawals.

"Q" security clearances issued:	258
Formal "P" clearances issued:	80
"P" approvals issued:	46
Employees granted category access:	52
Category access withdrawn:	27 employees

Security Education Articles and Cartoons in Hanford Works News:

"Why the Lid is Closed", on October 3.
"What Are We Doing to Forestall Disaster", on October 10.
"Excuses Will Not Help to Eliminate Disaster", October 17.
"Don't Be Fooled by Any Wooden Horses", October 24.
"Beware of Dangers that Are Read", October 31.

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING OCTOBER 31, 1952

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
EMPLOYEE AND COMMUNITY RELATIONS DEPARTMENT							
I. Visits to other Installations							
G. L. Brown, Jr. to: University of Rochester Rochester, New York	Attend AEC Technological Information Committee Meeting	N. H. Jacobson	10-8-52	10-8-52	X		
G L Brown, Jr. to: Knolls Atomic Power Lab. Schenectady, New York	Discuss Community Relations activities and AEC Technological Information Committee activities with work at KAPL	H. E. Scott L. L. German	10-9-52	10-10-52	X		
MEDICAL DEPARTMENT							
I. Visitors to this Works							
H. Elrod California Research & Dev.Co. Livermore, California	Familiarize self with procedures in locations where radio-activity is a problem, and records on health physics problems	P. A. Fuqua, M.D. E. Quigley, M.D.	10-28-52	10-31-52	X		100-H XXX 300 303
ENGINEERING DEPARTMENT - ADMINISTRATIVE							
I. Visits to other Installations							
A. B. Greninger to: General Electric Company Chicago, Illinois	Attend GE Management Meeting		10-2-52	10-3-52	X		

Ja-15

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass Areas
ENGINEERING DEPARTMENT - TECHNICAL SECTION						
I. Visitors to this Works						
A. D. Aird Knolls Atomic Power Laboratory Schenectady, New York	View and discuss new Hot Laboratory equipment and look at manipulator	L. D. Turner	10-28-52	10-28-52	X	100-B 105-B 100-D XXX 200-W Redox 300 XXX
W. S. Brown Argonne National Laboratory Chicago, Illinois	Install gas analysis apparatus on ANL 140	M. D. Fitzsimmons	10-1-52	10-17-52	X	100-H 105 300 XXX
A. H. Canada Knolls Atomic Power Laboratory Schenectady, New York	Discuss underwater examination facilities, slug tester and tool dolly	R. M. Fryar	10-6-52 10-8-52	10-10-52 10-8-52	X	100-D XXX 100-B 108 300 303 105-C
M. A. Erb Erb & Gray Instrument Company San Francisco, California	Service Metallograph instrument	L. D. Turner L. D. Turner	10-6-52 10-9-52	10-6-52 10-10-52	X	100-B 105 100-B 105
C. G. Giesel Applied Research Laboratory Glendale, California	Inspect spectrographic equipment	A. H. Bushey	10-27-52	10-28-52	X	300 3706 200-W 234
L. G. Gitzendanner Knolls Atomic Power Laboratory Schenectady, New York	Discuss underwater examination facilities, slug tester and tool dolly	R. M. Fryar	10-6-52 10-8-52	10-10-52 10-8-52	X	100-D XXX 100-B 108 300 303 105-C
W. H. Hensen Norton Company Boston, Massachusetts	Discuss refractories	R. J. Anicetti	10-15-52	10-15-52	X	300 3706
W. B. Lewis Oak Ridge National Laboratory Oak Ridge, Tennessee	Information on metal recovery processes	F. W. Woodfield	10-20-52	10-31-52	X	700; 300 XXX 200-W Redox, 221-U

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
C. Mannal Knolls Atomic Power Laboratory Schenectady, New York	General assistance to Hanford Program	F. W. Albaugh G. E. McCullough	10-6-52 10-7-52	10-7-52 10-7-52	X X	300 303 100-B 108 100-D 105,189 100-H 105 100-F 105	
J. B. Marling Jarrell-Ash Company El Cerrito, California	Service spectrographic equipment	L. F. Kendall H. A. Parodi H. H. Van Tuyl	10-9-52	10-9-52	X	300 3706	
G. E. Martin Knolls Atomic Power Laboratory Schenectady, New York	View and discuss new Hot Laboratory equipment and look at manipulator	L. D. Turner	10-28-52	10-28-52	X	100-B 105-B 100-D XXX 200-W Redox 300 XXX	
M. E. Norby International Business Machines Richland, Washington	Repair IBM equipment	R. L. Dickeman	10-28-52	10-28-52	X	100-D 105-D	
B. L. Penberthy Penberthy Instrument Company Seattle, Washington	Discuss application of lead glass	R. G. Wheeler	10-30-52 10-31-52	10-31-52 10-31-52	X X	100-D XXX 200-W Redox 300 XXX 100-B 105-B	
H. E. Soisson Knolls Atomic Power Laboratory Schenectady, New York	Set up cross section experiment	G. E. McCullough J. E. Faulkner	10-28-52	10-31-52	X	100-D 105-D 100-H XXX 300 303	
H. H. Strain Argonne National Laboratory Chicago, Illinois	Consultation on analytical and chemical problems	F. W. Albaugh	10-23-52	10-23-52	X	100-F 108 300 XXX	
G. W. Watt University of Texas Austin, Texas	Research and development problems	R. B. Richards	10-13-52	10-17-52	X	200-W 221-U, Redox 300 XXX	
M. Weech American Cyanamide Company Arco, Idaho	Pick up information and reports on Redox and material handling	F. W. Woodfield	10-15-52	10-16-52	X	300 XXX	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
O. J. Whittemore Norton Company Boston, Massachusetts	Discuss refractories	R. J. Anicetti	10-15-52	10-15-52	X		300 3706
R. H. Winget Oak Ridge National Laboratory Oak Ridge, Tennessee	Information on metal recovery processes	F. W. Woodfield	10-20-52	10-31-52	X		700; 300 XXX 200-W Redox, 221-U
W. E. Kingston Sylvania Electric Products Bayside, New York	Discuss canning techniques	G. E. McCullough	10-1-52	10-3-52	X		100-B 105-B 100-D 189 100-H 105 300 303
II. Visits to other Installations							
R. J. Anicetti to: Battelle Memorial Inst. Columbus, Ohio	Attend AEC Ceramic Conference	- -	10-28-52	10-29-52	X		
J. C. Ballinger to: U. S. Atomic Energy Comm. North American Aviation, Inc. Downey, California	Technical discussion in a symposium on graphite irradiation	R. L. Carter	10-1-52	10-3-52	X		
L. P. Bupp to: U. S. Atomic Energy Comm. North American Aviation, Inc. Downey, California	Technical discussion in a symposium on graphite irradiation	R. L. Carter	10-1-52	10-3-52	X		
J. W. Culvahouse to: Phillips Petroleum Co. Arco, Idaho	Discuss a carbon-12 irradiation and delivery of samples	W. B. Lewis	10-6-52	10-7-52	X		
M. H. Curtis to: Oak Ridge National Lab. Oak Ridge, Tennessee	Hot Laboratory and Equipment Information Meeting; Consult on UO_3 problems and Purex Process information	F. W. Hurd F. Ring	10-3-52	10-10-52	X		

Jg-18

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
M. H. Curtis to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend second meeting on Hot Laboratories and facilities	F Ring	10-7-52	10-9-52	X		
D. H. Curtiss to: U. S. Atomic Energy Comm. North American Aviation, Inc. Downey, California	Technical discussion in a symposium on graphite irradiation	R. L. Carter	10-1-52	10-3-52	X		
R. E. Fiel to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend second meeting on Hot Laboratories and facilities	F. Ring	10-7-52	10-9-52	X		
R. E. Field to: Argonne National Lab. Chicago, Illinois	Consultation on remote handling equipment	R. Goertz	10-10-52	10-10-52	X		
H. R. Gardner to: National Lead Company Fernald, Ohio	Discussion and observation on metallurgy of uranium	J. M. Ciborski	10-6-52	10-24-52	X		
P. F. Gast to: U. S. Atomic Energy Comm. Washington, D. C.	Consultation on reactor program	S. McClain	10-20-52	10-21-52	X		
P. F. Gast to: E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on reactor program	C. W. J. Wende	10-21-52	10-22-52	X		
P. F. Gast to: New York Shipbuilding Co. Camden, New Jersey	Discuss reactor development problems	A. A. Johnson	10-22-52	10-22-52	X		
P. F. Gast to: Knolls Atomic Power Lab. Schenectady, New York	Critical experiment Meeting	K. H. Kingdon	10-23-52	10-24-52	X		
J. F. Gifford to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend second meeting on Hot Laboratories and facilities	F. Ring	10-7-52	10-9-52	X		

jf-19

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
H. Harty to: General Engineering Lab. Schenectady, New York	Observation of electro-matic ball conveyor	J. H. Barnwell	10-28-52	11-1-52	X		
H. Harty to: Knolls Atomic Power Lab. Schenectady, New York	Observation of electro-matic ball conveyor	E. S. Baker	10-29-52	10-30-52	X		
M. W. Hulin to: Argonne National Lab. Chicago, Illinois	Discussion concerning irradiation programs for Hanford Works	J. T. Bobbitt R. Fiore J. S. Etherington	10-6-52	10-8-52	X		
M. W. Hulin to: Aircraft Nuclear Propulsion Project Lockland, Ohio	Discussion concerning irradiation programs for HW	J. J. Neely W. G. Baxter B. J. Sevoid	10-10-52	10-10-52	X		
M. W. Hulin to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discussion concerning irradiation programs for Hanford Works	M. E. Ramsey J. H. Gillette D. S. Billington	10-9-52	10-10-52	X		
W. T. Kattner to: Mallinckrodt Chemical Wks St. Louis, Missouri	Observe and discuss uranium reduction and casting	W. H. Keller	9-25-52	3-31-53	X		
W. T. Kattner to: Argonne National Lab. Chicago, Illinois	Metallurgical consul-tations	F. G. Foote	9-1-52	3-1-53	X		
W. T. Kattner to: Feed Materials Production Center Fernald, Ohio	Consultation on metallurgy of uranium	J. M. Ciborski	8-1-52	1-31-53	X		
W. T. Kattner to: Simonds Saw & Steel Lockport, New York	Observation of metal fabrication	A. D. Potts C. H. Emery	6-18-52	12-31-52	X		
W. T. Kattner to: Aircraft Nuclear Propulsion Project Lockland, Ohio	Metallurgical consul-tations	J. S. Parker	10-7-52	3-31-53	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
D. C. Kaulitz to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend second meeting on Hot Laboratories and facilities	F. Ring	10-7-52	10-9-52	X		
R. L. Knecht to: Feed Materials Production Center Fernald, Ohio	Consultation on metallurgy of uranium	J. M. Ciborski	8-1-52	1-31-53	X		
R. L. Knecht to: Simonds Saw & Steel Lockport, New York	Observation of metal fabrication	A. D. Potts C. H. Emery	6-18-52	12-31-52	X		
G. A. Last to: Argonne National Lab. Chicago, Illinois	Attend AEC meeting on alloys	F. G. Foote	10-31-52	10-31-52	X		
H. L. Mars to: Mass. Inst. of Technology Cambridge, Massachusetts	Fuel element consultation	A. R. Kaufmann	10-3-52	10-6-52	X		
H. L. Mars to: Knolls Atomic Power Lab. Schenectady, New York	Fuel element consultation	A. U. Seybolt	10-3-52	10-8-52	X		
H. L. Mars to: General Eng. Lab. Schenectady, New York	Fuel element consultation	E. S. Baker	10-3-52	10-8-52	X		
G. M. Muller to: Knolls Atomic Power Lab. Schenectady, New York	Nuclear Safety Meeting	K. H. Kingdon	10-23-52	10-24-52	X		
A. M. Platt to: Oak Ridge National Lab. Oak Ridge, Tennessee	Purex Process consultation studies	F. L. Steahley F. Hurd K. Jackson S. Katz	10-1-52	10-4-52	X		
A. M. Platt to: Argonne National Lab. Chicago, Illinois	Technical consultation on Purex	S. Lawroski	10-6-52	10-7-52	X		

Ja-21

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
O. W. Rathbun to: National Lead Company Fernald, Ohio	Discussions and observations of Metallurgy of Uranium	J. M. Ciborski	10-6-52	10-24-52		X	
J. W. Riches to: Feed Materials Production Center Fernald, Ohio	Consultation on metallurgy of uranium	J. M. Ciborski	8-1-52	1-31-53	X		
J. W. Riches to: Argonne National Lab. Chicago, Illinois	Attend meeting on uranium metallurgy	F. G. Foote	10-30-52	10-31-52	X		
W. C. Riley to: U. S. Atomic Energy Comm. North American Aviation, Inc. Downey, California	Technical discussion in symposium on graphite irradiation	R. L. Carter	10-1-52	10-3-52	X		
R. A. Rohrbacher to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Consultation regarding rectilinear manipulator	R. H. Fillnow	10-13-52	10-16-52	X		
Margaret A. Ryan to: National Lead Company Fernald, Ohio	Discussions and observations of Metallurgy of Uranium	J. M. Ciborski	10-6-52	10-24-52	X		
Margaret A. Ryan to: Battelle Memorial Inst. Columbus, Ohio	Consultation on metallurgy of uranium	H. R. Nelson	10-17-52	10-17-52	X		
W. L. Schalliol to: Battelle Memorial Inst. Columbus, Ohio	Discussion on fuel element development program	H. R. Nelson	10-17-52	10-17-52	X		
W. L. Schalliol to: Mass. Institute of Tech. Cambridge, Massachusetts	Discussion on fuel element development program	A. R. Kaufmann	10-23-52	10-23-52	X		
W. L. Schalliol to: National Research Corp. Cambridge, Massachusetts	Discussion of melting uranium alloys in conjunction with Battelle Program	T. Cranks	10-24-52	10-24-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
H. R. Schmidt to: Argonne National Lab. Chicago, Illinois	Discuss results of "Bluenose" project	F. Hagemann	10-29-52	10-31-52	X		
A. E. Smith to: Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Inspection consultation	E. J. Walko E. J. Walko	10-20-52 10-25-52	10-25-52 11-1-52	X X		
W. R. Smith to: Battelle Memorial Inst. Columbus, Ohio	Consultation on welding facilities	C. B. Voldrich	10-31-52	10-31-52	X		
C. G. Stevenson to: Argonne National Lab. Chicago, Illinois	Discuss problems of classified document control	H. D. Young	10-3-52	10-4-52	X		
C. G. Stevenson to: University of Rochester Rochester, New York	Attend meeting of AEC Technical Information Panel	H. A. Blair	10-5-52	10-8-52	X		
C. G. Stevenson to: Vitro Corp. of America New York, New York	Discuss problems of classified document control and arrange for inventory	H. B. Lyts	10-8-52	10-9-52	X		
C. G. Stevenson to: General Electric Co. Schenectady, New York	Discuss problems of classified document control	E. S. Baker	10-9-52	10-10-52	X		
R. E. Tomlinson to: Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on Purex process	F. L. Steahley K. Jackson F. Hurd S. Katz	10-9-52	10-10-52	X		
J. R. Townsend to: U. S. Atomic Energy Comm. North American Aviation, Inc. Downey, California	Technical discussion in symposium on graphite irradiation	R. L. Carter	10-1-52	10-3-52	X		

Ja-23

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
L. D. Turner to: Phillips Petroleum Co. Arco, Idaho	Consultation on under-water viewing	S. Bartz	10-15-52	10-27-52	X		
A. C. Weyerts to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend second meeting on Hot Laboratories and facilities	F. Ring	10-7-52	10-9-52	X		
A. T. Whatley to: Phillips Petroleum Co. Arco, Idaho	Deliver samples for exposure in MTR and technical discussion	W. H. Pennington	9-30-52	3-31-53	X		
R. G. Wheeler to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend second meeting on Hot Laboratories and facilities	F. Ring	10-7-52	10-9-52	X		
E. C. Wood to: Argonne National Lab. Chicago, Illinois	Technical consultation on non-destructive testing	W. J. McGonnagle	10-16-52	10-17-52	X		
E. C. Wood to: U. S. Atomic Energy Comm. New York, New York	Discuss fuel element testing	Mr. Hoeschel	10-18-52	10-18-52	X		
P. D. Wright to: National Lead Company Fernald, Ohio	Observe treatment of uranium rods	J. M. Ciborski	10-13-52	10-15-52	X		
P. D. Wright to: Argonne National Lab. Chicago, Illinois	Attend meeting on uranium metallurgy	F. G. Foote	10-16-52	10-17-52	X		
H. F. Zuhr to: Argonne National Lab. Chicago, Illinois	Discussion concerning irradiation programs for Hanford Works	J. T. Bobbitt R. Fiore J. S. Etherington	10-6-52	10-8-52	X		
H. F. Zuhr to: Aircraft Nuclear Propulsion Project Lockland, Ohio	Discussion concerning irradiation programs for HW	J. J. Neely W. G. Baxter	10-10-52	10-10-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
H. F. Zuhr to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discussion concerning irradiation programs for Hanford Works	M. E. Ramsey J. H. Gillette D. S. Billington	10-9-52	10-10-52	X		
D. B. Lovett to: Phillips Petroleum Co. Arco, Idaho	Deliver samples for exposure in MTR and technical discussions	W. H. Pennington	10-1-52	10-3-52	X		
W. L.Schalliol to: Ames Laboratory Ames, Iowa	Discuss fuel element development program	F. Spedding	10-27-52	10-27-52	X		
J. A. Ayres to: Electrochemical Society Montreal, Canada	Attend meeting on corrosion	- -	10-24-52	10-30-52		X	
R. S. Dalrymple to: Columbia Electric & Mfg.Co. Spokane, Washington	Monitor and inspect anodizing of 200 process tubes	W. Toley	10-6-52 10-16-52	10-8-52 10-24-52		X X	
ENGINEERING DEPARTMENT - DESIGN SECTION							
I. Visitors to this Works							
H. C. Feldman Charles T. Main, Inc. Boston, Massachusetts	Discuss railroad layouts	J. H. Snyder	10-10-52	10-20-52	X		
E. L. Knoedler Sheppard T. Powell Baltimore, Maryland	Consultations on water quality and corrosion and examine tests	V. D. Nixon M. H. Russ R. M. Fryar	10-1-52	10-13-52	X		100-B 105, 108-B 100-D 105-D 100-F 105 100-H 105 300 XXX
M. F. Parr Foxboro Company Foxboro, Massachusetts	Calibration of 105-C Power Calculator	E. S. Day, Jr.	10-27-52	11-15-52	X		100-B 105-C
C. H. Robbins North American Aviation, Inc. Downey, California	Discuss design problems on gas purification equipment and graphite research program	R. T. Jaske L. P. Bupp	10-16-52	10-17-52	X		100-F 105 300 3703

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
K. R. White Northwest Electronics Spokane, Washington	Test commination equipment in 105-C	O. H. Pilkey E. P. Peabody	10-29-52	10-30-52	X		105-C
II. Visits to other Installations							
C. O. Clemetson to: Charles T. Main, Inc. Boston, Massachusetts	Design consultation on 100-K Area	R. K. Patterson	10-20-52	10-26-52	X		
G. S. Cochrane to: Vitro Corp. of America New York, New York	Consultation on selection of connectors for Purex facility	J. C. Tourek M. Savelson	10-21-52	10-22-52	X		
C. W. Harrison to: Lamp Division General Electric Company Nela Park, Cleveland, Ohio	Discuss "canning mechanization"	J. Flaws, Jr.	10-16-52	10-17-52	X		
R. C. Hoffman to: Charles T. Main, Inc. Boston, Massachusetts	Confer on 100-K Water Plant facilities	R. K. Patterson	10-21-52	10-24-52	X		
E. Hollister to: Lamp Division General Electric Company Nela Park, Cleveland,Ohio	Discuss "canning mechanization"	J. Flaws, Jr.	10-16-52	10-17-52	X		
E. B. LaVelle to: Knolls Atomic Power Lab. Schenectady, New York	AEC Welding Committee meeting and discuss collateral welding problems	W. Fleischmann	10-1-52	10-2-52	X		
V. D. Nixon to: Charles T. Main, Inc. Boston, Massachusetts	Discuss design schedules, construction schedules and procurement schedules	R. A. Moncrief	10-14-52	10-15-52	X		
V. D. Nixon to: Lamp Division General Electric Company Nela Park Cleveland, Ohio	Discuss "canning mechanization"	J. Flaws, Jr.	10-16-52	10-17-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
D. L. Peterson to: General Eng. Laboratory Schenectady, New York	Observe pre-test of electroveyor	J. H. Barnwell D. H. Marquis C. W. George	10-27-52	10-31-52	X		
G. H. Strong to: General Eng. Laboratory Schenectady, New York	Observe pre-test of electroveyor	J. H. Barnwell D. H. Marquis C. W. George	10-27-52	10-31-52	X		
G. S. Cochrane to: Crane Company Chicago, Illinois	Discuss connector design for Purex facility	A. Houser V. P. Rumely	10-24-52	10-25-52		X	
C. W. Harrison to: Ajax Engineering Company Trenton, New Jersey	Discuss furnace control design	M. Tama W. Sherman	10-23-52	10-23-52		X	
C. W. Harrison to: General Electric Company Schenectady, New York	Discuss automatic machine controls	R. A. Newton U. C. Kelling	10-24-52	10-25-52		X	
R. C. Hollingshead to: Bird Machine Company South Wapole, Massachusetts	Discuss liquid centrifuges	C. A. King F. X. Fernie	10-30-52	10-30-52		X	
R. C. Hollingshead to: De Laval Separator Co. Poughkeepsie, New York	Discuss liquid centrifuges	G. F. Wheelright W. C. Porch	10-31-52	10-31-52		X	
R. C. Hollingshead to: Sharples Corporation Philadelphia, Pennsylvania	Discuss liquid centrifuges	F. H. Smith	11-1-52	11-1-52		X	
E. Hollister to: Ajax Engineering Company Trenton, New Jersey	Discuss furnace control design	M. Tama W. Sherman	10-23-52	10-23-52		X	
E. Hollister to: General Electric Company Schenectady, New York	Discuss automatic machine controls	R. A. Newton U. C. Kelling	10-24-52	10-25-52		X	

Ja-27

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
E. P. Peabody to: Allis Chalmers Company Milwaukee, Wisconsin	Discuss pump and motor design problems	H. L. Ross	10-18-52	10-22-52		X	
G. M. Roy to: Allis Chalmers Company Milwaukee, Wisconsin	Discuss pumps and pump drive machinery	H. L. Ross	10-18-52	10-22-52		X	
M. H. Russ to: Allis Chalmers Company Milwaukee, Wisconsin	Discuss pumps and pump drive machinery	H. L. Ross	10-18-52	10-22-52		X	
II. Visitors to this Works (cont'd)							
W. J. Robinson Vitro Corporation of America New York, New York	Consultation on Purex Scope design	W. B Webster	10-7-52	10-8-52	X		
M. M. Savelson Vitro Corporation of America New York, New York	Consultation on Purex Scope design	W. B. Webster	10-21-52	10-24-52	X		
M. V. Slawinsky Vitro Corporation of America New York, New York	Consultation on Purex Scope design	W. B. Webster	10-21-52	10-24-52	X		
S. M. Stoller Vitro Corporation of America New York, New York	Consultation on Purex Scope design	W. B. Webster	10-22-52	10-29-52	X		
J. B. Thomas Vitro Corporation of America New York, New York	Consultation on Purex Scope design	W. B. Webster	10-20-52	10-31-52	X		
T. G. Watkins Vitro Corporation of America New York, New York	Consultation on Purex Scope design	W. B. Webster	10-21-52	10-24-52	X		
ENGINEERING DEPARTMENT - PROJECT SECTION							
I. Visitors to this Works							

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J-128

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
S. B. Biddle Leeds and Northrup Spokane, Washington	Test purposes	J. G. Donahue	10-24-52	10-25-52	X	105-C	
W. S. Dunning, Jr. Sheldon Dunning Seattle, Washington	In connection with Project CG-483, Downcomer repairs in B, D, DR & H and F	J. W. Brands	10-29-52	10-31-52	X	White Bluffs	
K. R. White Northwest Electronics Spokane, Washington	Inspect and test communications equipment	J. R. Kelly O. H. Pilkey	10-7-52 10-29-52	10-9-52 10-30-52	X X	105-C 105-C	
A. H. Canada General Engineering Laboratory Schenectady, New York	Tool dolly modification, project CG-482	H. P. Shaw W. D. Richmond	10-6-52	10-6-52		X	
L. G. Gitzendanner General Engineering Laboratory Schenectady, New York	Tool dolly modification, project CG-482	H. P. Shaw W. D. Richmond	10-6-52	10-6-52		X	
L. C. Boller Coast Paint & Chemical Co. Los Angeles, California	Review of joint sealant problems, project CG-506	P. J. O'Neil	10-13-52	10-14-52		X	100-F XXX 100-H XXX
W. N. McPhee Coast Paint & Chemical Co. Los Angeles, California	Review of joint sealant problems, project CG 506	P. J. O'Neil	10-13-52	10-14-52		X	100-F XXX 100-H XXX
F. T. Kebely K-Plastix San Francisco, California	Consultation on project CG-438	H. P. Shaw	10-20-52	10-23-52		X	
II. Visits to other Installations							
G. C. Gabler to: Savannah River Ordnance Augusta, Georgia	Design and construction consultation	J. D. Ellett W. P. Overbeck R. C. Stanton R. K. Mason	10-20-52	10-23-52	X		

7a-29

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
G. C. Gabler to: Oak Ridge National Lab. Oak Ridge, Tennessee	Design and construction consultation	S. R. Sapirie C. A. Budnick F. P. Callaghan	10-24-52	10-27-52	X		
J. R. Kelly to: Charles T. Main, Inc. Boston, Massachusetts	Liaison with architect-engineer on 100-K Program	R. A. Moncrieff	10-13-52	10-15-52	X		
J. W. Clinehens to: Oscar Krenz, Inc. Oakland, California	Obtain estimate information on stainless steel	O. Krenz	10-22-52	10-25-52		X	XXI
D. A. Conley to: Denver, Colorado	Recruit drafting personnel	- -	10-7-52	10-9-52		X	XXI
G. P. Kesel to: Bouillon & Griffith Architects Seattle, Washington	Architectural engineering consultation on 101 facility	Messrs. Bouillon Griffith	10-31-52	10-31-52		X	XXI
G. P. Kesel to: Pacific Car & Foundry Seattle, Washington	Engineering consultation on 101 facility	Mr. Walker	10-31-52	10-31-52		X	
R. L. Lysher to: Oscar Krenz, Inc. Oakland, California	Obtain estimate information on stainless steel	O. Krenz	10-22-52	10-25-52		X	
W. D. Richmond to: Hollywood Alloy Casting Co. Los Angeles, California	Discussion with vendor	E. Milman	10-13-52	10-15-52		X	
W. D. Richmond to: Viking Electric Company Los Angeles, California	Discussion with vendor	V. A. Wood M. Green	10-13-52	10-15-52		X	
W. D. Richmond to: X-ray Products Corp. Los Angeles, California	Discussion with vendor	J. Schneeman	10-13-52	10-15-52		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
W. D. Richmond to: Cascade Manufacturing Co. Portland, Oregon	Discussion with vendor	C. Richmond J. Page R. Warren	10-16-52	10-17-52		X	
H. L. Sterling to: Sundstrand Milling Machine Rockford, Illinois	Re Government P.O. No. DP-15002	Mr. Floody	10-13-52	10-16-52		X	
D. L. Taylor to: General Electric Company Philadelphia, Pennsylvania	GRSC conference	A. H. Rau	10-26-52	11-1-52		X	

MANAGEMENT

I. Visitors to this Works

J. A. Alberts Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on spectrochemical procedures	L. B. Bradley J. W. Hall R. E. Roberts	8-11-52	12-5-2	X	700 200-W 234, 235	
V. L. Easterly Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in statistical quality control	L. B. Bradley E. F. Butler	7-14-52	10-24-52	X	700 300 XXX 200-W 231, 234, 2	
[illegible] Dow Chemical Company Rocky Flats Laboratory [illegible], Colorado	Training on spectrochemical procedures	L. B. Bradley J. W. Hall R. E. Roberts	8-11-52	11-30-52	X	700 300 XXX 200-W 234, 235	
[illegible] Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods and analysis of materials	L. B. Bradley R. E. Roberts E. W. Murray	9-8-52	10-24-52	X	700 300 XXX 200-W 231, 234, 2	
[illegible] Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in statistical quality control section accountability problems and accountability measurements	L. B. Bradley A. H. Bushey	9-22-52	12-5-52	X	700 300-XXX 200-W 231, 234, 221-U	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
W. D. Richmond to: Cascade Manufacturing Co. Portland, Oregon	Discussion with vendor	C. Richmond J. Page R. Warren	10-16-52	10-17-52		X	
H. L. Sterling to: Sundstrand Milling Machine Rockford, Illinois	Re Government P.O. No. DP-15002	Mr. Floody	10-13-52	10-16-52		X	
D. D. Taylor to: General Electric Company Philadelphia, Pennsylvania	GRSC conference	A. H. Rau	10-26-52	11-1-52		X	
MANAGEMENT							
I. Visitors to this Works							
J. A. Alberts Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on spectro-chemical procedures	L. B. Bradley J. W. Hall R. E. Roberts	8-11-52	12-5-2	X	700 200-W 234, 235	
V. L. Easterly Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in statistical quality control	L. B. Bradley B. F. Butler	7-14-52	10-24-52	X	700 300 XXX 200-W 231, 234, 235	
J. J. Gutteras Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on spectro-chemical procedures	L. B. Bradley J. W. Hall R. E. Roberts	8-11-52	11-30-52	X	700 300 XXX 200-W 234, 235	
R. W. Lehner Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods and analysis of materials	L. B. Bradley R. E. Roberts H. W. Murray	9-8-52	10-24-52	X	700 300 XXX 200-W 231, 234, 235	
J. A. Schulz Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in statistical quality control section accountability problems and accountability measurements	L. B. Bradley A. H. Bushey	9-22-52	12-5-52	X	700 300-XXX 200-W 231, 234, 221-U	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. D. Thorne Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods of analysis of materials	L. B. Bradley R. E. Roberts H. W. Murray	10-6-52	11-21-52	X		700 300-XXX 200-W 231, 234, 235, 221-T, Redox
R. C. Yates Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods of analysis of materials	L. B. Bradley R. E. Roberts H. W. Murray	9-8-52	10-25-52	X		700 300 XXX 200-W 231, 234,235
J. W. Guthrie Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on spectro-chemical procedures	L. B. Bradley J. W. Hall H. E. Roberts	8-11-52	11-30-52	X		700 300 XXX 200-W 231, 234,232
J. T. Byrne Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Discuss laboratory procedure, regarding 234-5 facilities and inspect fluormeter and X-ray photometer	L. B. Bradley R. S. Bell D. Shepard H.W. Murray R. E. Roberts	11-3-52	11-8-52	X		700 300 3705 200-W 231, 234,235 Redox, 222-U
P. D. Nance Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods of analysis of materials	L. B. Bradley R. E. Roberts H. W. Murray	11-3-52	12-19-52	X		700 300 XXX 200-W 231, 234,235
J. L. Pfiel Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Discuss laboratory procedure, regarding 234-5 facilities and inspect fluormeter and X-ray photometer	L. B. Bradley R. S. Bell H. W. Murray R. E. Roberts D. Shepard	11-3-52	11-22-52	X		700 300 XXX 200-W 231, 234,235 Redox, 222-U
W. S. Andrus Knolls Atomic Power Laboratory Schenectady, New York	Training assignment in preparation for West Milton operations	L. B. Bradley L. Wallace	10-13-52	12-19-52	X		100-B 105-B, 105-C 100-D 105-D 100-F 105 100-H 105 200-W 231, 234 700

Ja-32

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
B. James Knolls Atomic Power Laboratory Schenectady, New York	Training assignment in preparation for West Milton operations	L. B. Bradley A. R. Keene P. C. Jerman	10-20-52	11-15-52	X		100-B 105-B,105-C 100-D 105 100-F 105 100-H 105 200-W 221-U, 231 234, Redox
T. R. Young Knolls Atomic Power Laboratory Schenectady, New York	Training assignment in preparation for West operations concerning maintenance supervision	L. B. Bradley E. E. Weyerts R. T. Jessen	10-13-52	11-29-52	X		100-B 105-B,105-C 100-D 105 100-F 105 100-H 105 200-E 221-B,201-C 200-W 221-U, Redox, 221-T, 231, 234
Helen Elrod California Research & Development Livermore, California	Study radiological service records and medical records on radiation problems	L. B. Bradley K. F. Baldridge W. A. McAdams	10-29-52	10-30-52	X		300 303
D. E. Irwin General Electric Company Schenectady, New York	Review needs for professional personnel and review work to be done by such people	D. W. McLenegan	10-21-52	10-24-52	X		300 303 100-H 105 200-W Redox, 221-U
II. Visits to other Installations							
W. E. Johnson to: General Engineering Laboratory Schenectady, New York	Consultation on Hanford Assistance Program and general policy matters	B. R. Prentice	10-1-52	10-3-52	X		
W. E. Johnson to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on Hanford Assistance Program and general policy matters	G. R. Prout	9-29-52	9-30-52	X		
W. E. Johnson to: Aircraft Nuclear Propulsion Lockland, Ohio	Consultation on Hanford Assistance Program	C. J. LaPierre J. S. Parker	10-1-52	10-1-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
C. J. Shortess, Jr. to: Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Exchange of information concerning source and fissionable accountability	L. R. Drake	10-22-52	10-24-52	X		
RADIOLOGICAL SCIENCES DEPARTMENT							
I. Visitors to this Works							
R. Z. Bouton Knolls Atomic Power Laboratory Schenectady, New York	Consultation on laboratory and development sub-unit problems	M. L. Mickelson	10-20-52	10-24-52	X		100-F 105, 108 200-W 221-T, 221-U, Redox 300 XXX
R. L. Clark Oak Ridge National Laboratory Schenectady, New York	Consultation on neutron measurements	W. A. McAdams	10-20-52	10-21-52	X		100-B 105, 108 200-W 221-U, Redox 300 XXX
H. Elrod California Research & Development Co. Livermore, California	Study radiological records	K. F. Baldridge	10-30-52	10-30-52	X		300 303
II. Visits to other Installations							
W. A. McAdams to: U. S. Atomic Energy Comm. Arco, Idaho	Attend AEC Division of Biology & Medicine Health Physics Symposium	G. V. Beard	10-16-52	10-18-52	X		
H. J. Paas to: U. S. Atomic Energy Comm. Arco, Idaho	Attend AEC Division of Biology & Medicine Health Physics Symposium	G. V. Beard	10-16-52	10-18-52	X		
H. M. Parker to: U. S. Atomic Energy Comm. Arco, Idaho	Attend AEC Division of Biology & Medicine Health Physics Symposium	G. V. Beard	10-16-52	10-18-52	X		
W. C. Roesch to: U. S. Atomic Energy Comm. Arco, Idaho	Attend AEC Division of Biology & Medicine Health Physics Symposium	G. V. Beard	10-16-52	10-18-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. F. Foster to: University of Washington Seattle, Washington	Transport fish tanks and fish	- -	10-27-52	10-30-52		X	
H. A. Kornberg to: Pullman, Washington	Annual meeting or Northwest AEC Research Contractors	- -	10-22-52	10-25-52		X	
P. A. Olson to: University of Washington Seattle, Washington	Transport fish tanks and fish	- -	10-27-52	10-30-52		X	
H. M. Parker to: Pullman, Washington	Annual meeting of Northwest AEC Research Contractors	- -	10-22-52	10-25-52		X	
D. W. Pearce to: Pullman, Washington	Annual meeting of Northwest AEC Research Contractors	- -	10-22-52	10-25-52		X	
J. H. Rediske to: Pullman, Washington	Annual meeting of Northwest AEC Research Contractors	- -	10-22-52	10-25-52		X	

Ja-35

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UTILITIES AND GENERAL SERVICES DEPARTMENT- PURCHASING AND STORES SECTION

I. Visitors to this Works

T. L. Hull Ajax Engineering Corporation Trenton, New Jersey	Supervise installation of furnace purchased on order HWC 21786	G. J. Hayward C. R. McNutt	10-20-52	11-8-52	X	300 314	
J. McCracken Columbia Heat and Gas Co. Kennewick, Washington	Deliver propane gas purchased	R. J. Gandy	10-9-52	10-9-52		X 200-W	XXX
K. R. Rakestraw Propane Gas and Equipment Co. Kennewick, Washington	Deliver propane gas purchased	R. J. Gandy	10-9-52	10-9-52		X 200-W	XXX

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
R. Bagby West Coast Fast Freight Kennewick, Washington	Deliver cylinders on order 100077-M	H. L. Morgan	10-3-52	10-3-52		X	100-B 105 100-D 105 100-F 105
	Deliver cylinders on order 100077-M	H. L. Morgan	10-7-52	10-7-52		X	100-B 105 100-D 105
	Deliver cylinders on order	H. L. Morgan	10-9-52	10-9-52		X	100-D 105 100-F 105
V. F. Langley Inland Motor Freight Kennewick, Washington	Deliver cylinders on order 100077-M	H. L. Morgan	10-13-52	10-13-52		X	100-B 105 100-D 105
	Deliver cylinders on order	H. L. Morgan	10-16-52	10-16-52		X	100-B XXX 100-D XXX
A. Schuman United Truck Lines Kennewick, Washington	Deliver material on order	H. L. Morgan	10-15-52	10-15-52		X	300 XXX
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order	H. L. Morgan	10-16-52	10-16-52		X	101
	Deliver material on order	H. L. Morgan	10-17-52	10-17-52		X	101
F. Colbert United Truck Lines Kennewick, Washington	Deliver material on order	H. L. Morgan	10-16-52	10-16-52		X	300 XXX
	Deliver material on order	H. L. Morgan	10-20-52	10-20-52		X	300 XXX
	Deliver material on order	H. L. Morgan	10-21-52	10-21-52		X	300 XXX
E. A. Janes Consolidated Freightways Kennewick, Washington	Deliver material on order HW 674	H. L. Morgan	10-20-52	10-20-52		X	101
	Deliver material on order 77701-M	H. L. Morgan	10-28-52	10-28-52		X	300 303-J
B. D. Stanley Liquid Carbonic Corporation Seattle, Washington	Deliver carbonic gas purchased	G. E. Lish	10-20-52	10-20-52		X	100-B XXX
L. W. Cady Inland Motor Freight Kennewi[illegible] Washington	Deliver cylinders on order HW 21740	H. L. Morgan	10-20-52	10-20-52		X	100-D 105 100-F 105

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
G. Hiron Inland Motor Freight Kennewick, Washington	Deliver material on order Hw 21076-M	H. L. Morgan	10-21-52	10-21-52		X	200-E 275-E
W. McEachern Inland Motor Freight Kennewick, Washington	Deliver material on order HW 21076-M	H. L. Morgan	10-21-52	10-21-52		X	200-E 275-E
	Deliver material on order 20543	H. L. Morgan	10-22-52	10-22-52		X	200-W 275-W
L. W. Cady Inland Motor Freight Kennewick, Washington	Deliver material on order 100039	H. L. Morgan	10-23-52	10-23-52		X	100-B 105 100-D 105
	Deliver cylinders on order HW 100039	H. L. Morgan	10-27-52	10-27-52		X	100-B 105 100-D 105
	Deliver cylinders on order HW 100039	H. L. Morgan	10-29-52	10-29-52		X	100-B 105
	Deliver cylinders on order	H. L. Morgan	10-31-52	10-31-52		X	100-D 105 100-F 105

II. Visits to other Installations

G. J. Hayward to: Knolls Atomic Power Lab. Schenectady, New York	Discuss purchase order procedures	R. M. Brennan	11-17-52	11-20-52		X	

UTILITIES AND GENERAL SERVICES DEPARTMENT - STATISTICAL AND COMPUTING SERVICES SECTION

I. Visitors to this Works

V. L. Easterly Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Study application of statistical methods to problems of accountability	C. A. Bennett R. F. Cell	7-14-52	10-25-52	X		700 300 3703
D. Crumb International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	10-1-52	10-31-52		X	700 722-A
F. Corazza International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	10-1-52	10-31-52		X	700 722-A

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
M. R. Meyers International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	10-1-52	10-31-52		X	700 722-A
N. R. Norby International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	10-1-52	10-31-52		X	700 722-A
R. C. Warren International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	10-1-52	10-31-52		X	700 722-A
J. R. Whitman International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	10-1-52	10-31-52		X	700 722-A
Ja-38 MANUFACTURING DEPARTMENT							
I. Visitors to this Works							
K. E. Atwood Bailey Meter Company Seattle, Washington	Inspect meters in 384 Building	E. Hilgemann	10-31-52	10-31-52		X	300 384 Bldg.
J. A. Alberts Dow Chemical Company Rocky Flats Laboratory Schenectady, New York	Training on spectro-chemical procedures	J. W. Hall R. E. Roberts	8-11-52	12-5-52	X		700 200-W 234, 235
W. S. Andrus Knolls Atomic Power Laboratory Schenectady, New York	Training assignment in preparation for West Milton operations	L. Wallace	10-13-52	12-19-52	X		100-B 105-B, 105-C 100-D 105 100-F 105 100-H 105 200-W 231, 234 700
R. Z. Bouton Knolls Atomic Power Laboratory Schenectady, New York	Consultation on labora-tory and development sub-unit problems	M. M. Cox	10-24-52	10-24-52	X		100-F 105

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
J. T. Byrne Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Discuss laboratory procedure, regarding 234-5 facilities and inspect fluormeter and X-ray photometer	D. Shepard H. W. Murray R. E. Roberts	11-2-52	11-21-52	X	700 300 3705 200-W 231,234, 235, Redox	
J. J. Guiteras Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on spectro-chemical procedures	J. W. Hall R. E. Roberts	8-11-52	11-30-52	X	700 300 XXX 200-W 234, 235	
J. W. Guthrie Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training on spectro-chemical procedures	J. W. Hall R. E. Roberts	8-11-52	11-30-52	X	700 300 XXX 200-W 231, 234, 235	
T. L. Hull Ajax Engineering Corporation Trenton, New Jersey	Supervise installation of furnace purchased on order HWC 21786	C. R. McNutt	10-20-52	11-8-52	X	300 314	
B. James Knolls Atomic Power Laboratory Schenectady, New York	Training assignment in preparation for West Milton operations	A. R. Keene P. C. Jerman	10-20-52	11-15-52	X	100-B 105-B,105-C 100-D 105 100-F 105 100-H 105 200-W 221-U,231 234, Redox	
R. W. Lohner Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods and analysis of materials	R. E. Roberts H. W. Murray	9-8-52	10-24-52	X	700 300 XXX 200-W 231, 234,235	
P. D. Nance Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods of analysis of materials	R. E. Roberts H. W. Murray	11-3-52	12-19-52	X	700 300 XXX 200-W 231, 234,235	
J. L. Pflug Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Discuss laboratory procedure, regarding 234-5 facilities and inspect fluormeter	R. S. Bell H. W. Murray D. Shepard R. E. Roberts	11-3-52	11-22-52	X	700 300 XXX 200-W 231, 234,235	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass. Areas
J. A. Schulz Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in statistical quality control section accountability problems and accountability measurements	A. H. Bushey	9-22-52	12-5-52	X	700 300 XXX 200-W 231, 234 221-U
R. D. Thorne Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods of analysis of materials	R. E. Roberts H. W. Murray	10-6-52	11-21-52	X	700 300 XXX 200-W 231, 234, 235, 221-T, Redox
R. C. Yates Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Training in analytical methods of analysis of materials	R. E. Roberts H. W. Murray	9-8-52	10-25-52	X	700 300 XXX 200-W 231, 234, 235
T. R. Young Knolls Atomic Power Laboratory Schenectady, New York	Training assignment in preparation for West Milton operations	E. E. Weyerts R. T. Jessen	10-13-52	11-29-52	X	100-B 105-B,105-C 100-D 105 100-F 105 100-H 105 200-E 221-B,201-C 200-W 221-U,Redox, 221-T, 231,234

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II. Visits to other Installations

J. E. Bergman to: National Lead Company Fernald, Ohio	Discuss and observe metallurgy of uranium	J. M. Ciborski	10-6-52	10-25-52	X	
P. C. Jerman to: U. S. Atomic Energy Comm. National Reactor Testing Station Arco, Idaho	Attend classified health physics symposium	G. V. Beard	10-16-52	10-18-52	X	
W. M. Mathis to: Sylvania Products Company Bayside, New York	Review progress of slug fabrication	W.E. Kingston	10-29-52	10-29-52	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. W. Nageley, Jr. to: Savannah River Ordnance Augusta, Georgia	Inspect 300 Area facilities	J. D. Ellett K. W. Millett	10-23-52	10-28-52	X		
R. J. Bursey to: Columbia Electric Mfg. Co. Spokane, Washington	Observe and assist in anodizing and inspection of process tubes	W. Toley	10-16-52	10-24-52		X	
H. T. Wells to: Washington State College Pullman, Washington	Observe flow tests on scale model downcomer	R. L. Albrook C. Barker	10-2-52	10-2-52		X	
R. Willing to: Columbia Electric Mfg. Co. Spokane, Washington	Observe and assist in anodizing and inspection of process tubes	W. Toley	10-21-52	10-25-52		X	

Ja-41

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PURCHASING AND STORES SECTION
UTILITIES AND GENERAL SERVICES DEPARTMENT
SUMMARY - OCTOBER 1952

An additional 20 government orders were placed of the requisitions being handled for A.E.C. on the expansion program.

A shipment of 30,000 pounds of boron steel balls required for the first pile shutdown was enroute and scheduled to arrive November 3.

A requisition for the Canyon Crane and a requisition for stainless steel plate, pipe and tubing were received for the Purex plant. Processing of these requisitions has been started.

As a result of rate reductions obtained from carriers savings in freight charges for October were $2,514.04. The total savings from September 1, 1946 to date amounts to $1,730,259.69.

Although several items of work are yet to be completed by the contractor, Stores has accepted beneficial occupancy of the covered storage building at the new Central Stores Warehouse location.

Inventories previously controlled by the Technical Section in Buildings 3706 and 222-S valued at $18,159.32 were transferred to the Stores Unit.

Material and equipment valued at $46,943.77 were withdrawn from Account 10.10 (Excess) for use on the project. Excess material and equipment valued at $519,547.83 were shipped from the project as directed by the Commission. Total value of excess materials disposed of this month was $566,491.60.

During the month 42 formal excess lists with a total value of $1,257,059.04 were submitted to the Commission for disposition.

It has been necessary to secure NPA assistance in maintaining our delivery dates of aluminum products for process use. The situation will continue serious but it is not anticipated that insurmountable situations will arise.

The short-lived coal strike cost us one week's shipments from producers. However, our coal stock position is good. A further strike may materialize unless the government grants approval to the contract negotiated by the United Mine Workers and the Bituminous Coal Producers.

Organization and Personnel:

	9-30-52	10-31-52	Change
Employees on Roll	335	340	+5

1197953

PURCHASING AND STORES SECTION
GENERAL

Statistical and General

An improvement of four months in delivery promise for Sunstrand mill machines was obtained after conferences in Rockford, Illinois, attended by representatives of Sunstrand Machine Tool Company, National Production Authority, Hanford and Washington AEC and General Electric Company. A National Production Authority directive has frozen completion of these machines on the Sunstrand May 1953 schedule. Machines are for special machine work in connection with plant expansion.

U. S. Steel has been directed by National Production Authority to deliver 2,050 tons of structural steel in December and January. This material is to fill National Carbon Company's requirements for plant expansion under the G-12 graphite contract. Receipt as directed will allow their plant expansion on schedule.

Exemption from the terms of NPA Order M-77 has been received from the NPA. M-77 would have required that our procurement of maintenance, repair and operating supplies requirements, for that portion of our telephone facilities which produced revenue, be governed by that order. This would involve an all but impossible division of material requirements and double reporting and allotment applications.

3 Requests for NPA Directive or DX action were received.

1 Case was submitted to the Atomic Energy Commission for directive or DX action.

Personnel, overtime and other cost estimates were submitted for the FY 1953 Midyear Budget Review.

The volume of requisitions assigned and processed increased approximately 25% over September.

The following table shows the dollar value of business, by cost category, and the number of procurement actions placed with different types of vendors. Dollar amounts are based on the net value of purchase orders and alterations as transmitted to AEC.

October 1952	Vendor Type			
Cost Category	Government Agency	Small Business	Big Business	Educational and Other
$0 - $ 9.99	$ 5.95	$ 921.35	$ 420.21	$ 73.20
$10 - $ 499.99	260.79	96,755.43	68,352.80	532.13
$500 - $ 9,999.99		242,826.67	194,435.05	1,640.00
$10,000 - Up		164,909.08	212,736.42	
TOTAL	$ 266.74	$505,412.53	$475,944.48	$ 2,245.33
Number of Actions	7	1333	832	39

1197954

PURCHASING AND STORES SECTION
GENERAL

The following schedule reflects total allotments received from the Atomic Energy Commission and allotments used and extended to suppliers and contractors through October. Top figures under each item number indicate allotment received from the Atomic Energy Commission. Lower figures under each item number reflect material allotment used or allotted for the quarter indicated.

OPERATIONS

CONTROLLED MATERIAL	UNIT MEASURE	3 Q 52	4 Q 52	1 Q 53	2 Q 53
Carbon Steel (including wrought iron)	Short Tons	36.00 35.77	60.00 30.24	80.00 0	30.00 0
Alloy Steel (excluding stainless steel)	Short Tons	2.00 .15	3.00 1.01	2.00 .05	1.00 0
Stainless Steel	Lbs.	5,000 2,959	20,000 5,565	10,000 7,106	5,000 0
Copper & Copper Base Alloy Brass Mill Products	Lbs.	4,578 4,578	5,000 1,631	3,000 0	1,000 0
Copper Wire Mill Products	Lbs.	1,031 1,031	6,000 1,744	5,000 475	3,000 0
Copper & Copper Base Alloy Foundry Products & Powder	Lbs.	NONE	NONE	NONE	NONE
Aluminum	Lbs.	160,666 160,666	382,000 334,792	180,000 9,600	145,000 0

CONSTRUCTION

CONTROLLED MATERIAL	UNIT MEASURE	3 Q 52	4 Q 52	1 Q 53	2 Q 53
Carbon Steel Plate	Short Tons	29.00 19.25	50.00 0	10.00 0	10.00 0
Carbon Steel Structural Shapes	Short Tons	18.00 6.35	10.00 0	30.00 0	20.00 0
Carbon Steel Other Forms	Short Tons	35.00 .94	50.00 .16	100.00 .10	100.00 0
Alloy Steel (excluding stainless steel)	Short Tons	4.00 .05	3.00 .50	2.00 0	NONE
Stainless Steel	Lbs.	12,000 2,863	25,000 100	1,000 100	NONE
Copper & Copper Base Alloy Brass Mill Products	Lbs.	1,726 1,726	18,000 6,413	10,000 100	9,000 0
Copper Wire Mill Products	Lbs.	1,223 1,223	5,000 987	2,000 500	2,000 0
Copper & Copper Base Alloy Foundry Products & Powder	Lbs.	NONE	NONE	NONE	NONE
Aluminum	Lbs.	7,742 7,742	15,000 14,841	5,000 1,550	5,000 0

1197955

PURCHASING AND STORES SECTION
GENERAL

	G	D	Total
Requisitions on hand 10-1-52			
Operations Procurement	774	155	929
Construction Procurement	0	98	98
A.E.C. Procurement	104	21	125
Total	878	274	1152
Requisitions Assigned during October			
Operations Procurement	2568	121	2689
Construction Procurement	0	229	229
A.E.C. Procurement	318	23	341
Total	2886	373	3259
Requisitions Placed during October			
Operations Procurement	2465	236	2701
Construction Procurement	0	237	237
A.E.C. Procurement	324	33	357
Total	2789	506	3295
Requisitions on hand 10-31-52			
Operations Procurement	877	40	917
Construction Procurement	0	90	90
A.E.C. Procurement	98	11	109
Total	975	141	1116

Purchase Orders Placed	HW	HWC	By A.E.C.
Operations Procurement	1713	164	
Construction Procurement		177	251*
Total	1713	341	251

Value Purchase Orders Placed			
Operations Procurement	$696,242.96	$74,835.13	
Construction Procurement		126,014.23	
A.E.C. Procurement			$100,364.87*
	$696,242.96	$200,849.36	$100,364.87

* Includes 29 "DP" purchase orders totaling $40,406.56 processed for A.E.C. by Construction Procurement Unit.

Alterations Issued	Increase	Decrease	No Change	Total
H.W. Operations	84	34	6	124
H.W.C. Operations	15	7	1	23
H.W.C. Construction	24	14	1	39
	123	55	8	186

Value Alterations Issued	Increase	Decrease	Total
H.W. Operations	$21,839.19	$3,928.33	$25,767.52
H.W.C. Operations	3,835.49	481.97	4,317.46
H.W.C. Construction	13,197.96	2,971.26	16,169.22
	$38,872.64	$7,381.56	$46,254.20

Government Transfers	OR	ORC
	0	0

1197956

PURCHASING AND STORES SECTION
GENERAL

Vendor Contacts	246
Claims Processed	2
Damage Reports Processed	16
Over & Short Reports Processed	4
Accounts Payable Requests Handled	210
Difference Slips Processed	50
Alterations	153
Clearance Slips and Purchase Order Change Approvals	242
Material Exception Reports	212
Return Orders Issued	143

Organization and Personnel

	9-30-52	10-31-52	Change
Employees on Roll	48	46	-2

1197957

PURCHASING AND STORES SECTION
CONSTRUCTION PROCUREMENT UNIT
OCTOBER 1952

Statistical and General

The unit work load increased slightly over the previous month. 229 new purchase requisitions were received and 237 requisitions were placed. The unit also placed 20 Government orders on the requisitions being handled for the Atomic Energy Commission on the new construction program.

A shipment of 30,000 pounds of boron steel balls required for the first pile shutdown in F Area on November 17 was enroute to the Project and scheduled to arrive November 3.

Written requests were received from Inspection Services Unit to initiate action against three vendors for the recovery of costs expended by Atkinson & Jones forces in repairing equipment received containing poor workmanship. The equipment involved was for Project C-431-B and was received at Hanford between October 1951 and March 1952.

A requisition for the Canyon Crane for the new Purex Plant was received and invitations to bid were mailed to three crane manufacturers.

A requisition for 680 tons of stainless steel plate and 100 tons of pipe and tubing which will be required for the Purex plant vessels was also received. Negotiations were started with several stainless steel producers for the supplying of stainless steel cut to size and shape as required by the vessel fabricators.

Organization and Personnel

	9-30-52	10-31-52	Net Change
Employees on Payroll	21	18	-3

1197958

PURCHASING AND STORES SECTION
OPERATIONS PROCUREMENT UNIT
OCTOBER -- 1952

Statistical and General

The work load of the unit climbed materially during the month. Orders placed total 1877, including 1713 HW orders and 164 HWC orders. The HWC orders represent "D" Operations requisitions being worked out; the remainder of these orders will be completed during the month of November.

Orders completed by the Expediting group during the month include 1049 HW and 270 HWC'S; a total of 1319. There are presently 2437 open orders, or an increase for the month of 5.3%.

Difficulty in maintaining an adequate flow of aluminum products for process use continues. It has been necessary to secure NPA assistance in maintaining our delivery dates. The situation will continue serious, but it is not expected that unsurmountable situations will arise.

The short-lived coal strike cost us one week's shipments from the producers. However, this was not serious, as our coal stock position is good. It is possible that a further strike may materialize unless approval is granted by the government of the wage contract as negotiated by the United Mine Workers and the Bituminous Coal Producers.

Organization and Personnel

	9-30-52	10-31-52	Changes
Employees on roll	34	35	+ 1

PURCHASING AND STORES SECTION
STORES UNIT
OCTOBER, 1952

Statistical and General

Materials and equipment disbursed from Stores Unit Inventories, General Supplies (Account 10.2), Standby (Account 10.1) and Spare Equipment Held in Storage (Account 29) were valued at $198,263.65, $47,291.43, and $69,996.48 respectively for a total valuation of $315,551.56.

Purchase requisitions processed through screening totaled 2929 with 167 items furnished from Stores Unit Inventories.

Material and equipment disbursed from Account 10.20 (Construction Materials Held for Future Use) for use on the project were valued at $51,316.53. Materials valued at $2,064.04 were shipped from the project as directed by the Commission. Materials declared excess from this account totaled $1,257,059.04. The total value of material disposed of during the month was $1,310,439.61.

Materials and equipment valued at $46,943.77 were withdrawn from Account 10.10 (Excess) for use on the project. Excess materials and equipment valued at $519,547.83 were shipped from the project, as directed by the Commission. The total value of excess materials disposed of this month was $566,491.60.

During the month 42 formal excess lists with a total value of $1,257,059.04 were submitted to the Commission for disposition.

Two hundred and sixty three (263) representatives of Government and private businesses were escorted through our warehouses and yards for the purpose of negotiating the sale of scrap and surplus materials and the transfer of excess property. Nine (9) scrap sales were completed this month for a revenue of $10,265.05.

One A.E.C. Surplus Salvage Sale conducted by Stores Unit personnel during October resulted in a total revenue of $58,247.06.

Inventories previously controlled by the Technical Section in Buildings Nos. 3706 and 222-S valued at $9,877.38 and $8,281.94 respectively were physically inventoried and the responsibility transferred to the Stores Unit.

Effective October 27, 1952 the operation of the Technical Section Stockroom in the 3706 Building became the responsibility of the Stores Unit.

Stores has accepted on a beneficial occupancy basis the covered storage building at the New Central Stores Warehouse. Several items of work are yet to be completed in this building and an understanding was reached that the contractor would complete the work at a later date.

Organization and Personnel

	9-30-52	10-31-52	Change
Employees on Roll	221	231	+10

1197960

PURCHASING & STORES SECTION

TRAFFIC UNIT

October 1952

STATISTICAL AND GENERAL:

The Washington Public Service Commission has approved our proposal for reduction in rates on empty steel cylinders from Richland, Washington to Yakima, Washington, resulting in a savings of approximately $784.00 on the current order.

The motor carriers, at our request, have reduced the rate on Aluminum Extrusions from Phoenix, Arizona to Richland and/or Hanford. Washington which will effect savings of $1.00 per cwt. or approximately $255.00 on the present order.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of October amounting to $2,514.04. This makes a total savings from September 1, 1946 to date of $1,730,259.69.

Savings Report

1. Rate reductions obtained from carriers:

Commodity	Origin	Savings for October, 1952	Savings from 9-1-46 thru September 1952	Savings from 9-1-46 to date
Coal	Roslyn, Wash.	$1,725.54		
Sulphate of Soda	San Francisco, Calif.	383.80		
Compressed Gases	Yakima, Wash.	293.95		
Machinery	San Jose, Calif.	110.80		
		$2,514.09	$1,727,745.60	$1,730,259.69
2. Freight Bill Audit		1,925.45	100,519.81	102,445.26
3. Loss and Damage & Overcharge Claims		2,575.83	118,851.43	121,427.26
4. Ticket Refund Claims		249.17	27,285.78	27,534.95

PURCHASING & STORES SECTION
TRAFFIC UNIT
October 1952

Savings Report (Cont.)

5. Household Goods Claims	167.75	16,524.16	16,691.91
	$7,432.29	$1,990,926.78	$1,998,359.07

Work Volume Report

Reservations Made	Rail	111
	Air	228
	Hotel	260
Expense Accounts Checked		215
Household Goods & Automobiles	Movements Arranged Inboud	9
	Movements Arranged Outbound	5
	Insurance Riders Issued	13
	Insurance Bills Approved	1
	Requests for Claim Billing	1
	Claims Filed	5
	Claims Collected - Number	1
	Claims Collected - Amount	$167.75
Ticket Refund Claims	Filed	18
	Collected - Number	14
	Collected - Amount	$249.17
Freight Claims	Filed	12
	Collected - Number	17
	Collected - Amount	$2,575.83
	Over and Shorts Processed	9
	Damage Reports Processed	11
Freight Bill Audit Savings		$1,925.45
Freight Shipments Traced		99
Quotations	Freight Rates	166
	Routes	211
Bills Approved	Air Express	25
	Boat	4
	Carloading	57
	Express	227
	Rail	1,098
	Truck	386
Carload Shipments	Inbound	1,124
	Outbound	18

1197962

PURCHASING & STORES SECTION
TRAFFIC UNIT
October 1952

Report of Carloads Received

General Electric Company	CMSTP&P	NP	UP	TOTAL
Aluminum Pigs			1	1
Aluminum Sulphate	1		4	5
Bathtubs		1		1
Caustic Soda	12	10	12	34
Chlorine, Liquid		2	1	3
Coal	124	94	823	1,041
Ferric Sulphate		1		1
Hydrogen Flouride			1	1
Laboratory Fume Hoods	4			4
Lift Trucks			1	1
Lime			1	1
Methyl Isobutyl Ketone			1	1
Nitrate of Soda	3	4	1	8
Nitric Acid		4	3	7
Office Equipment		1		1
Pallets	1	1		2
Paper, Building		1		1
Petroleum	1			1
Quicklime		1		1
Salt	1	1		2
Sodium Phosphate		1		1
Sodium Sulphate		1	1	2
Steel Containers	1			1
Trichloroethylene		1		1
Merchandise		2		2
Total	148	126	850	1,124

1197963

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TRANSPORTATION SECTION
MONTHLY REPORT
October 1952

GENERAL

Transportation Section personnel forces decreased from 536 to 533 employees during the month by 4 new hires, 2 transfers in, 1 reactivation - personal illness, 7 terminations, 2 transfers out and 1 deactivation - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during October decreased 16.4% over September as coal shipments were suspended from October 18 to October 28 due to the Nationwide coal strike.

Process service continued at a high level with actual car movements increasing 34% over September.

Car movements including process service totaled 2,910 in October compared to 3,560 in September; 3,177 in August; 1,433 in July; 2,141 in June: 2,272 in May; 2,639 in April; 3,282 in March: 2,803 in February and 2,909 in January.

The following recapitulation indicates the number of commercial cars handled:

Carload Movements -	Loads In	Empties In	Loads Out	Empties Out
General Electric Company	1152	29	21	1232
Atkinson & Jones Company	14	-	-	14
Bauer Construction Co.	1	-	-	1
Brown Morse Co.	1	-	-	1
Bumstead & Woolford	2	-	-	2
Bryan W. Burtch Co.	2	-	-	3
W. G. Clark Co.	1	-	-	1
Fox-Smith Sheetmetal Co.	3	-	-	3
E. F. Hauserman Co.	4	-	-	3
Jagger-Sroute Co.	1	-	-	1
Kaiser Engineering	16	-	-	16
Larsen Company	9	-	-	7
Royal Cc.	-	-	-	1
J. G. Shotwell	3	-	-	2
U. S. Army	12	6	6	16
	1221	35	27	1303

1197964

Transportation Section

One hundred twenty ton diesel electric locomotive 39-3732 was removed from service on October 3 to overhaul the traction motors and restore the flange and tread contour of the wheels. The wheels were sent to the Northern Pacific Railroad Shops in Auburn, Washington for turning and the traction motors were reconditioned by the 200-East Electrical Shop. One defective traction motor pinion gear was replaced. All parts have been returned to Riverland and the trucks reassembled for installation under the locomotive.

One hundred twenty ton diesel electric locomotive 39-3730 was derailed on October 30 on a crossover switch west of the Riverland Roundhouse lead. Brake rigging and one gear case cover were damaged. One lead wheel is condemnable and the locomotive has been removed from service until such time as the wheels can be removed for turning and resizing.

Completed annual inspection and service on flat cars 10B 3639 and 10B 3645.

Railroad track maintenance and rehabilitation work continued on a routine basis. Lining, surfacing and dressing of track required 4,743 man-hours. Installation of ties, rail and other track materials required 654 man-hours. Distribution and handling of track materials required 357 man-hours. Repairing road crossings required 747 man-hours. Weed control required 318 man-hours.

/TOMOTIVE ACTIVITIES

The Plant Bus System transported 3.7% more passengers in October than in September. The following statistics indicate the magnitude of service rendered:

Passenger volume	148,301
Revenue - bus fares	$ 7,415.00
Earnings - transit advertising (September)	393.77
Bus trips	6,900
Bus miles - passenger carrying	184,309
Passenger miles	4,544,834

The following is a comparative breakdown of average daily round trips to the Plant Areas:

Passenger buses - 100-B	11
Passenger buses - 100-D	12
Passenger buses - 100-F	12
Passenger buses - 100-H	9
Passenger buses - Hanford	3
Passenger buses - 200-West	32
Passenger buses - 200-East	4
Passenger buses - 300 Area	6

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Transportation Section

Passenger buses - Riverland	2
Passenger buses - Pistol Range	2
Passenger buses - North Richland	4
Passenger buses - White Bluffs	3
700-300 Area Shuttle Service	16
Inter-Area Passenger Shuttle & Express	2

Effective October 10, instructions were issued to clarify the handling of "standee" passengers from the 200-East "Y" to the outer areas. Standees will be permitted and the normal fare of five cents will be collected.

Special bus service was rendered during the month as follows:

1. A bus was provided to the Radiological Sciences Department on October 14 for a tour of the 100-F Area.

2. A bus was provided to the Atomic Energy Commission on October 16 for a tour of the 100-C Area.

3. Two buses were provided to the Richland Community Chest on October 18 for an inspection tour of their activities.

The Richland Bus System transported 44.2% fewer passengers in October than in September. The sharp decline in passenger volume is due to the curtailed service effective October 6, 1952. The revised system reduced the number of routes from five to three and provides service during peak periods only. During the first three weeks of operation under the revised system, passenger volume and revenue has decreased approximately 50% while the net expense has been decreased about 65%. The following statistics indicate the volume of service rendered.

Total passengers including transfers	16,984
Revenue - bus fares	$ 1,190.80
Earnings - transit advertising (September)	19.42
Bus trips	1,251
Bus miles - passenger carrying	6,630
Passenger miles	43,785

Off Plant chauffeured automobile trips (Company business and/or official visitors totaled 204 and were rendered as indicated to the following locations:

Benton City, Washington	3
Grandview, Washington	2
Heminger City, Washington	1
Hinkle, Oregon	11
Kennewick, Washington	8
McNary Dam, Washington	2
Pasco, Washington	123

1197966

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Transportation Section

Pendleton, Oregon	38
Sunnyside Washington	9
Toppenish, Washington	1
Yakima, Washington	6

The following tabulation indicates the volume of Drivers Test Service rendered;

Applicants:	Male	60	Number tests given	73
	Female	13	Number rejected	0

Permits issued:	Limited to driving with glasses		25
	Unlimited		48
Permits reissued:	Routine	18	
	New AEC	0	
	New AEC to date	6200	

The following tabulation indicates the volume of fuel distribution by Equipment Maintenance personnel:

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	33,724	15,636	19,997	1,798	65
Received during month	117,950	12,010	24,400	3,198	265
Dispensed during month	118,063	15,068	27,910	2,794	11
Stock at end of month	33,611	12,578	16,397	2,202	319

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by Equipment Maintenance personnel:

Motor overhauls	34
Class A Inspections and Repairs	97
Class B Inspections and Lubrications	1212
Other routine maintenance repairs and service calls	2680
Tire Repairs	740
Wash jobs	611

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Transportation Section

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	335	612,300
1B	Buses	100	240,188
1C	Pickup trucks	462	288,336
1D	Panel,Carryall,Sta.Wagon	129	143,445
1E	Armored Cars	2	104
1G	Jeeps	2	976
68 Series	Trucks	210	85,140
		1,240	1,370,489

Winterizing of Hanford Works automotive and heavy equipment is virtually completed and all water cooled units have been serviced with antifreeze.

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of road asphalt material handled by Transportation Services personnel:

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	4,062	0	0
Received during month	0	18,902	0	0
Dispensed during month	0	13,502	0	0
Stock at end of month	0	9,462	0	0

The following tabulation indicates the volume of road aggregate materials handled by Transportation Services personnel:

	3/4" to 0 Pre-mix Tons	¼" to 0 Pre-mix Tons	5/8" Chips Cu.Yd.	1/4" Chips Cu.Yd.
Stock at start of month	723	19	1,672	6,385
Made during month	0	0	0	0
Used during month	629	19	1,032	0
Stock at end of month	94	0	640	6,385

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ansportation Section

Maintenance of primary roads required 698 man-hours; secondary roads 185 man-hours; 700 Area roads, sidewalks and parking lots 404 man-hours.

Handling of materials and equipment for the Stores Unit at White Bluffs, Hanford, 700, 1100 and 3000 Areas included 32 carloads, 204 truckloads and required 5,054 man-hours.

Area deliveries of operational supplies required 2,063 man-hours; office furniture, equipment and records 1,736 man-hours; weed control 400 man-hours; mosquito control 64 man-hours and ice deliveries 32 man-hours.

Handling of essential materials in the 300 Area required 421 man-hours. Moving material for Electrical Distribution from 200-East to 200-North required 447 man-hours.

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Copies #1 - #13 - Plant Monthly Report
#14 - H. D. Middel
#15 - F. J. Mollerus
#16 - A.E.C. J. I. Thomas
#17 - 700 File
#18 - 300 File
#19 - H. A. Remaly
#20 - H. A. Carlberg

ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION November 6, 1952

OCTOBER 1952

GENERAL

The Section work backlog, as of October 31, totaled 4,215 man days distributed as follows:

	Days Per Craftsman	Total Man Days	Net Change Man Days
Line Maintenance	41	1,350	86 Increase
Substation Maintenance	25	404	22 Increase
Telephone Unit	61	2,461	80 Decrease

Section total work force decreased from 185 to 183. Technical Graduate, C. T. Wagner, was assigned to this Section for rotational training and possible permanent assignment upon transfer of J. H. Budd to the Process Areas.

Electrical power peak demands for October were:

Date	October KW Demand	Comparative Sept. KW Demand
Process Load 10-8-52 (9:30 AM - 10: 00 AM)	99,700 KW	87,230
Richland Load 10-29-52 (5:30 PM - 6:00 PM)	19,520 KW	14,720

The October 8 process demand of 99,700 KW was an all time system demand peak resulting from simultaneously testing ten 3500 H.P. motors in the 100-C Area. The previous 95,100 KW all time peak on August 8, 1952 occurred during preliminary testing in the same area. Richland Village demand exceeded the previous month but demand and consumption were lower than October 1951. This is accounted for by considerably milder temperatures, with degree-days down 26.6% compared to last year. A comparison of October 1952 with October 1951 is as follows:

	Demand KW	Consumption KWH	Degree-Days
October 1951	24,660	10,476,000	455
October 1952	19,520	7,944,000	334
Decrease 1952	20.8%	24.2%	26.6%

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A Financial Department - Electrical Distribution Unit division of responsibility was developed for meter reading and billing Richland Village electrical energy customers. The Electrical Distribution Unit's sole responsibility will be meter reading, and to discontinue service for non-payment of bills when advised by the Financial Department.

The Pacific Northwest critical power shortage continues as a result of extremely low water supply. A DEPA order is expected momentarily placing limitations on users in excess of 8,000 KWH per week or 300 KW demand. It will be necessary to regulate a small number of Richland consumers.

BPA has proposed lowering their system frequency to 59.0 cycles as a method of load control during peak periods while the water shortage exists. Copy of an agreement reached with the Manufacturing Department for reducing system frequency to 59.4 cycles was transmitted to the AEC. Further study and discussion is necessary before agreeing to operation at 59.0 cycles.

ELECTRICAL DISTRIBUTION UNIT

Operation and Maintenance

A switching error on October 11 interrupted electrical service to Building 101 for approximately eight minutes with no appreciable loss of production.

Overhaul and inspection was completed of the 66-KV power supply for "K" Area construction and the construction 10,000 KVA transformer bank was energized.

A study of the past use of electricity in North Richland indicates a .55 KW peak per capita. On this basis the present 8,500 KVA source is considered ample for the 1952 - 1953 winter season.

System Expansion and Planning

200-E Area 13.8 KV power supply facilities were reviewed and appear adequate for the proposed additional manufacturing facilities. Arrangements completed by the AEC to take possession of an existing section of the Army's 13.8 KV lines will complete the supply circuit to the new buildings.

Preliminary scoping was completed of a project for providing phase comparison relay protection for the existing 230 KV system. Project Engineering will prepare the project proposal.

An item (B-1718) of $16,000.00 was added to the FY 1955 construction budget for installing totalizing demand meters on the process areas power system. The continuous information thus provided will enable the exercise of a measure of load control which will save installation costs in an estimated six months.

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Preliminary checking of Roller Smith watt-hour meters received for the Fifth Housing Addition has disclosed unsatisfactory mechanical faults. Checking will be continued to determine if these faults are common to the entire shipment.

TELEPHONE UNIT

Operation and Maintenance

A contractor's A-frame truck struck and broke a 51 pair telephone cable which included important circuits in the 200-W Area. Arrangements were made to back charge repair costs to the contractor.

A telephone dial speed testing unit was installed in the Richland Telephone Exchange which reduces the time required for installation and servicing of subscriber telephones. Calls to the test desk for verifying dial speeds are eliminated and one man performs tests formerly requiring two men.

A summary of telephone subscriber service is as follows:

	Subscriber Stations in Service	Lines Available for Service	Sides Available for Service	Exchange Lines in Service
Richland	5,092 Residence 1,019 Official 435 Misc.	46	416	3,918
North Richland	573	101	30	499
Process Areas	1,289	687		1,265
Total	8,408	834	446	5,682

Richland Exchange four-party service:

	October 31, 1952	September 30, 1952
Number of lines, complete fill	37	41
Partial fill with three subscribers	36	23
Subscribers	442	356

The backlog of two hundred and seventy eight (278) requests for residential telephone service is a slight decline from previous months. This is probably attributable to the increase in subscribers to four-party service.

System Expansion and Planning

An item (B-1717) was added to the FY 1955 construction budget for modernizing plant radio communications equipment. This is in agreement with the recommendations of a joint study completed by the Telephone Unit and AEC's Washington communications representatives.

A "Crash Alarm" (conference equipment) was installed in the Richland Exchange. Telephone numbers of Radiological Sciences Department key personnel will be assigned to this system to provide communications during possible emergencies.

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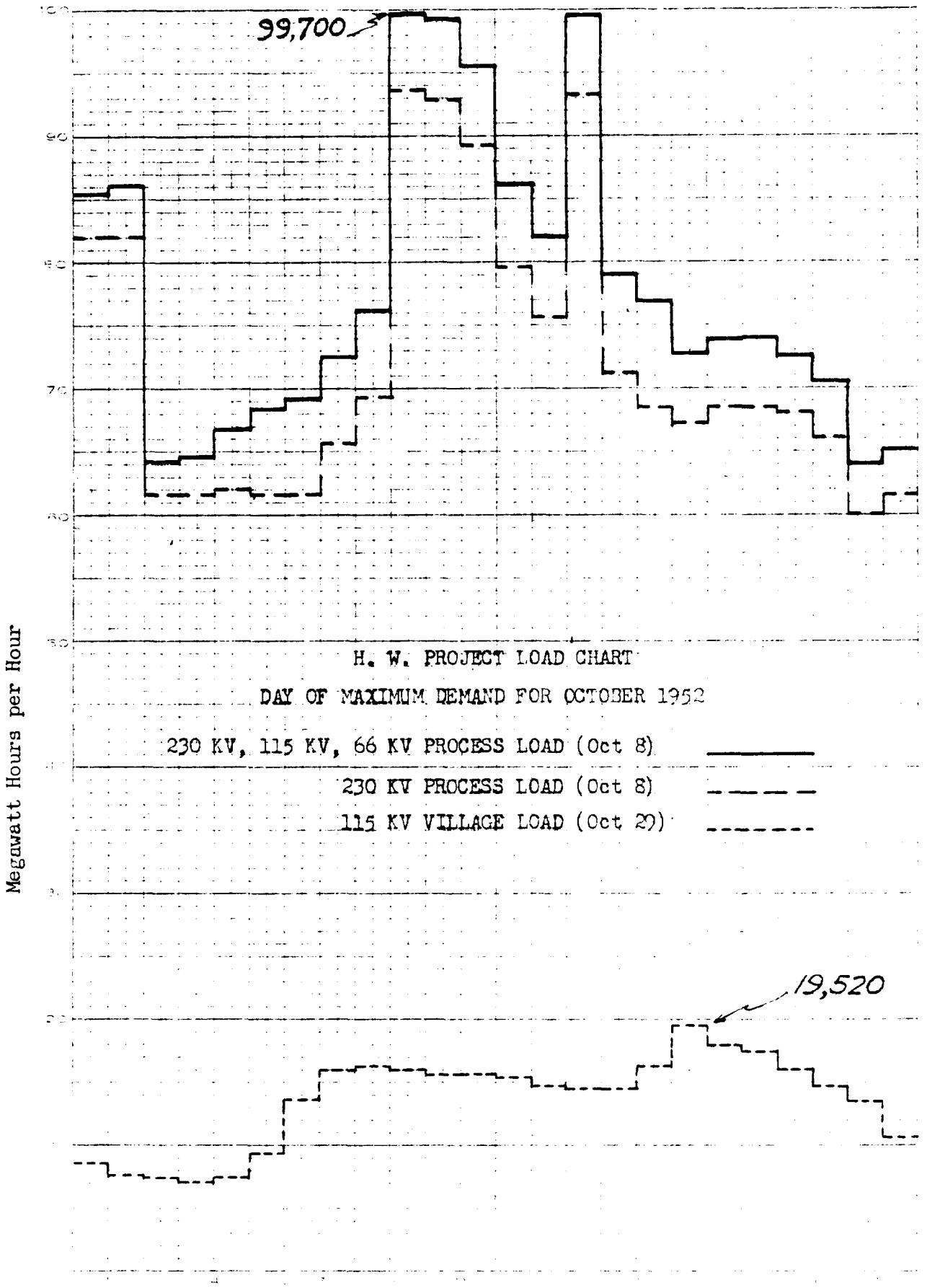
POWER STATISTICS
ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION
FOR MONTH ENDING OCTOBER 31, 1952

	Energy - MW Hrs.		Max Demand - KW		Load Factor - %	
	Sept.	Oct.	Sept.	Oct.	Sept.	Oct.
230 KV System						
A-2 Out (100-B)	10325	13760	24700	39000	58.1	47.4
A-4 Out (100-D)	14800	16270	22700	24600	90.6	88.9
A-5 Out (100-H)	9072	9324	13800	13700	91.3	91.5
A-6 Out (100-F)	7405	7910	11700	11900	87.9	89.3
A-8 Out (200 Area)	4788	4932	8280	8280	80.3	80.1
TOTAL OUT	46390	52196	81180**	97480**	79.4	72.0
MIDWAY IN	47063	53030	79600*	93600 *	82.1	76.1
Transm. Loss	673	834				
Per cent Loss	1.4	1.6				
115 KV System						
B1-S5	86	93	432	605	27.5	20.7
B1-S4 Out (N.Rich.)	1517	1646	2822	3456	74.7	64.0
Richland	6814	7944	14720 *	19520 *	64.3	54.7
BB3-S4 Out (300 Area)	952	1040	2160	2320	61.2	60.3
TOTAL OUT	9369	10723	20134**	25901**	64.6	55.6
Benton In	1640	2340	24800 *	27200 *	9.2	1.2
So. Richland In	7840	8460	18000 *	22400 *	60.5	50.1
TOTAL IN	9480	10800	42800**	49600**	30.8	29.3
Transm. Loss	111	77				
Per cent Loss	1.2	0.7				
66 KV System						
B9-S11 Out (100-C)	130	26	300	370	60.3	9.4
B7-S10 Out (W.Bluffs)	315	423	1530	1418	28.6	40.1
Hanford Out	232	129	600**	300**	53.7	57.8
TOTAL OUT	677	578	2430**	2088**	38.7	37.2
HANFORD IN	623	582	1600 *	1500 *	54.1	52.2
Transm. Loss	+54	4				
Per cent Loss	+8.7	0.7				
Project Total						
230 KV Out	46390	52196	81180**	97480**	79.4	72.0
115 KV Out	9369	10723	20134**	25901**	64.6	55.6
66 KV Out	677	578	2430**	2088**	38.7	37.2
TOTAL OUT	56436	63497	103744**	125469**	75.6	68.0
230 KV In	47063	53030	79600 *	93600 *	82.1	76.1
115 KV In	9480	10800	42800**	49600**	30.8	29.3
66 KV In	623	582	1600**	1500**	54.1	52.2
TOTAL IN	57166	64412				
Transm. Loss	730	915				
Per cent Loss	1.3	1.4				

*Denotes Coincidental Demand
**Denotes Non-Coincidental Demand

Average Power Factor - 230 KV System 91.7
Average Power Factor - 115 KV System 89.8
Average Power Factor - 66 KV System 86.7

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99,700
19,520
Megawatt Hours per Hour
H. W. PROJECT LOAD CHART
DAY OF MAXIMUM DEMAND FOR OCTOBER 1952
230 KV, 115 KV, 66 KV PROCESS LOAD (Oct 8)
230 KV PROCESS LOAD (Oct 8)
115 KV VILLAGE LOAD (Oct 29)

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UTILITIES AND GENERAL SERVICES DEPARTMENT
STATISTICAL AND COMPUTING SERVICES SECTION

MONTHLY REPORT - OCTOBER, 1952

Personnel Statistics

Following is the month end summary of personnel:

Statistical & Computing Services Section

	As of 9-30-52			As of 10-31-52			Net Change		
Unit	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
General	1	1	2	1	1	2	0	0	0
Statistics	7	7	14	6	6	12	-1	-1	-2
Computing	19	42	61	20	46	66	+1	+4	+5
TOTAL	27	50	77	27	53	80	0	+3	+3

Statistics Unit

	As of 9-30-52			As of 10-31-52			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	1	1	2	1	1	2	0	0	0
Business Statistics	3	0	3	2	0	2	-1	0	-1
Precision & Quality Control	1	3	4	1	3	4	0	0	0
Research and Development	2	3	5	2	2	4	0	-1	-1
TOTAL	7	7	14	6	6	12	-1	-1	-2

Mr. G. P. Ruderman was granted a leave of absence to attend to personal affairs requiring his presence in Canada and the east. One Technologist "C" was transferred to the Computing Unit.

Mr. Verald L. Easterly of the Dow Chemical Company, Rocky Flats Plant, completed his training with the Statistics Unit. During his stay he was given a thorough introduction to the application of statistical methods to plutonium accountability problems, with particular attention to both chemical and radio-assay methods. He observed and participated in the current work of the Unit.

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Computing Unit

	As of 9-30-52			As of 10-31-52			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	2	2	4	2	2	4	0	0	0
Programming	12	7	19	12	9	21	0	+2	+2
Operations	5	29	34	6	32	38	+1	+3	+4
Rot. Training	0	4	4	0	3	3	0	-1	-1
TOTAL	19	42	61	20	46	66	+1	+4	+5

Two machine operators terminated and a technical graduate on rotational training transferred out of the Unit. Six machine operator trainees and one general clerk were hired. A technologist was transferred into the Unit. One non-exempt operator was transferred to the exempt roll as a shift supervisor.

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FOR THE MANUFACTURING DEPARTMENT

A statistical study is being made on the accuracy and precision of both the spectro-chemical and wet analysis methods of determining the amount of iron and silica present in uranium samples. It is desired to substitute the spectro-chemical method for the wet analysis method now in use because of the savings in man-hours which would be effected.

The Process Unit of the Metal Preparation Section has requested a statistically designed procedure be formulated for the sampling and acceptance of methanol.

At the request of the Process Unit of the Metal Preparation Section, a study was made of the relationship between the percentage of copper in the bronze bath and the percentage of slug rejects occurring at the frost test inspection point. This was done to determine any observable effect of the percentage copper in the bath on the bonding layer between slug and can. It was found that the amount of variation observed in the percent copper in the bronze bath did not reflect a measurable effect on bonding.

Re-evaluation of monthly tin consumption data for 4 inch and 8 inch canned slugs was made using the latest obtainable data. Current estimates for the amount of tin consumption for each type slug have been determined.

Statistical analyses are being continued on the dimensional changes of bare slugs after heat treatment in a molten salt bath. It has been discovered that these slugs show not only a dumb-belling effect but also a slight cross sectional ovaling effect after treatment. Such variables as position of the slugs in the bath and position of the slugs in the rods from which they came are being tested in order to find some explanation for the non-uniform effects caused by the treatment.

A study was made of a method called "Work Sampling" for the 300 Area Manufacturing - Engineering group. This method of making machine utilization studies employs periodic observations taken at random instead of the former practice of constant observation over a period of time. (Letter: R. F. Cell to R. D. Gilbert,"Work Sampling", 10-17-52.)

A sampling plan is being designed for the Process Unit to determine the accuracy of the inspection and classification of machined slugs into M and Z categories. The study is desired to determine whether a tightening of inspection standards is necessary.

A statistical report was issued on Metal Preparation Section results from machining, pickling, canning and autoclave, test pile, melt plant, and oxides. (Document HW-25904, "Statistical Quality Report - 300 Area, September, 1952", R. F. Cell to W. W. Windsheimer.) In addition, a metal quality report representing material produced by the Hanford Works and Mallinckrodt Chemical Works was issued which graphically presented the average analytical results up to September, 1952 and July, 1952 respectively. (Document HW-25980, "Statistical Quality Report - Uranium Metal, - 1952", R. F. Cell to W. T. Kattner.)

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A statistical analysis was made of tube inspection plans presented by the Process Unit, Reactor Section. This is in connection with the proposed routine inspection for corrosion and corrosion products in random samples of tubes in each pile during each month. Data from such future inspections will be analyzed statistically on a periodic basis to determine as nearly as possible the amount and rate of formation of corrosion products in process tubes.

A study is being made to determine the maximum amount of radiation a worker will receive as a result of direct contact with highly contaminated areas of very small size on the perforated aluminum dummies that are used in the charging of the tubes of the piles. Analysis will be based on estimates of the fractional contaminated spots per dummy, amount of area in contact with the worker's gloved hand, number of dummies moved per amount of time, and the level of contamination of the various areas of the slug.

A comprehensive inquiry has begun in order to determine the precision associated with the dial integration of the differential pressure pin recorders used in measuring pounds of steam from the individual boilers as well as the total pounds of export steam. Consultations were held relative to a feasible sampling procedure for ashes sluiced out of boilers.

FOR THE S. F. ACCOUNTABILITY STAFF

Several conferences were held with representatives of the SF Accountability Staff and the Accountability Section of the AEC concerning a proposed establishment of inventory estimates on a periodic basis by the AEC at HGE. It was decided that preliminary estimates of the type and number of determinations necessary for such a program will be forwarded to the Statistics Unit for study and comments.

Final analysis was made of a study of synthetic Solutions H-7 and 6-1-MS. The results were reported to The Applied Research Unit by letter. (Letter : R. F. Cell to W. W. Mills, "Synthetic Solutions - H-7 and 6-1-MS".)

Further comparisons of F-2 and F-17 data, as well as F-17, P-1, and F-2 com-

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analytical results from "J" slug analyses, and on 305 test pile results on "J" slugs, were employed in making these estimates. Graphs were prepared showing the precision expected relative to the number of slugs dissolved.

FOR THE ENGINEERING DEPARTMENT

A meeting was held with a representative of the Pile Technology Unit to discuss the 305 graphite testing for K piles which will take place after the first of the year. It was agreed that shortly in advance of the actual 305 testing a conference will be scheduled between the Pile Technology and Statistics Units to plan full scale tests on the first bars received and machined. These tests will provide the necessary information for setting up routine acceptance sampling and quality grading procedures.

In anticipation of another shipment of specially enriched uranium slugs, an extensive study was made to determine some feasible non-destructive method of determining the amount of uranium in a given uranium aluminum alloy slug. The past data of the "J" slug program was re-analyzed with this objective in mind. Three different methods were considered, namely, the uranium content as a function of dih reading in the test pile, content as a function of weight of slug, and content as a function of density of slug. The coefficients in the weight equation and the dih equation were determined on the basis of four specially fabricated slugs and the results then compared by determining how well the predicted values compare with the chemical analysis at Oak Ridge for ten miscellaneous reject slugs. Since density measurements were not made on the four special slugs no equation based on density could be determined in this case. The density method will be investigated upon receipt of data concerning uranium content vs. density for several special slugs now being fabricated by the Metallurgical Sub-unit. The errors involved in each method of determination as well as the error in the chemical analysis were determined. On the basis of this study it is indicated that the weight method is superior to the dih method. The density method may be the most desirable of the three since in the weight method the volume of each slug was assumed to be the same. In view of the simplicity of the weight or density determination in contrast to dih reading, a substantial savings in time and expense in testing these special slugs should be feasible.

A summary of the statistical analyses of current data regarding minimum residual can wall thickness with relevant remarks was submitted to the Pile Technology Unit. (Document HW-26073 "Statistical Analysis of Residual Can Wall Thickness", from R. H. Titman and F. H. Tingey to A. C. Callen, October 30, 1952).

On the basis of repeated determinations of the X-ray diffraction pattern of samples of compressed powdered uranium, the preferred orientation of the four reference planes of the uranium crystals can be determined. Duplicate and triplicate determinations on a standard failed to yield consistent results. Assistance was given in the formulation of a method to determine the preferred orientation from replicate determinations on a given standard. Further studies are in progress.

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On the basis of slug damage caused by the ribs in the process tubes as a result of charging (Document HW-23593) the probability of occurrence of gouge depths greater than 10 mils was computed.

Work is continuing on P.T.D. 105-503-A, Exposure of Continuously Rolled Uranium. Differences in slug length, diameter, and warp before and after irradiation are being analyzed.

Data supplied by Pile Technology on total slug failure classified by piles, orifice zones, time periods, and group metal were analyzed. A statistically significant increase in failures in the 240 zone of F pile was found.

At the request of the Pile Technology Unit, an investigation of all the slug ruptures that have occurred in the various piles has been made to determine whether there is a tendency for additional ruptures to occur in any given tube following the occurrence of a rupture in that tube. (Preliminary results of this study have been given orally to L. A. Lang of Pile Technology; a memorandum is being prepared).

At the request of the Pile Technology Unit the desirability, from a statistical point of view, of having one header in one of the future piles equipped with an independent water supply is being considered. The number of recent in-pile experiments that could have benefited by a substantial increase in the number of pile tubes used is being investigated.

An experimental procedure was designed for Pile Technology Unit for the purpose of finding the effect of water type, water temperature, water velocity, and exposure time on the pitting of different type metal with and without a protective film covering. Three specific designs will be used to answer the required questions.

An investigation of various aluminum alloys as possible substitute material for present 2 S aluminum process tubes and slug cans has indicated that the 63 S aluminum alloy has perhaps the most favorable properties. To adequently evaluate the performance of 63 S aluminum as a process tube and slug jacket material, a six month in-pile test was designed. Detailed analysis of the data will be made upon completion of the test.

Two different procedures of a control nature were submitted to Pile Technology Unit for determining the significance of a pressure drop film buildup in the process tubes of the various reactors. The success of the procedures are to be measured when sufficient data has been collected.

A problem pertinent to the determination of the thermal conductivity of various gases was analyzed for the Pile Technology Unit. A new computational method which is more accurate and less costly is being applied.

Pile tube factors (the ratio of individual tube temperature rise to average pile temperature rise) were calculated for 105-D and 105-DR. The 105 D data will be used to evaluate present flattening conditions in the pile. The 105-DR data was taken prior to and immediately following the poison pushes made in the original start-up. This information will be used to develop the poison requirements for 105-C start-up.

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A series of computations were made for Pile Technology relative to the effect of the insertion of an enriched rod into the center of an unflattened pile of the standard Hanford lattice and loading. The analysis is of experimental and theoretical significance.

A table of negative excess pile reactivity was prepared giving inhours of reactivity as a function of pile period for periods up to 500 seconds. This table will be used in pile shut-down calculations.

Work has been resumed on the Xenon poison integral. The calculation involves the numerical evaluation of a double integral over the volume of the pile.

In connection with unsteady state slug temperature calculations four new sets of results have been completed for the case in which water is shut off in a single tube. Calculations were made for different values of conductivity in each of the four sets. The programming of a new formula for the case in which water is shut off in a crossheader has been completed and four cases will be calculated for all piles, including 105-C. This programming includes an initial temperature distribution in the tube.

Assistance was given Pile Technology in the determination of the relative efficiency of various types of shielding as reflected by experiments conducted in the test well at DR pile. The analysis consisted of the evaluation of a considerable number of weighted regression functions whose coefficients reflected the efficiency of the shielding material under consideration.

A numerical analysis of a certain separations process was made for Separations Technology. The apparatus in question is composed of 14 stages, and the process divided into an undefined number of time cycles. At the beginning of a cycle two of the central stages are fed with known quantities of material. During the cycle, the material in each stage diffuses into its neighboring stages in given proportions, and at the end of the cycle, material is withdrawn from the first and last stage. The study was undertaken to determine how many cycles would be required, under certain conditions of feed and withdrawal, to establish equilibrium.

Additional information received from Oak Ridge since the issuance of Document HW-25743, "Precision of Calibration - Fission Count Method for Determining Pu_{240}" from R. H. Titman and F. H. Tingey to E. Kinderman, September 25, 1952) was examined for the purpose of reviewing the precisions quoted in the above document. A verbal report of the result was given to E. Kinderman.

In connection with the colorimetric determination of the parts per billion of iron in a given solution an extensive discussion of least squares regression theory was held with a member of the Applied Research Unit. This statistical technique is necessary for the correct evaluation of the experimental results in this study.

Routine computational work included special request exposure calculations group 9 metal studies, graphite lattice conductance studies, and least squares cosine fits for 144 sets of data.

1197981

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FOR THE RADIOLOGICAL SCIENCES DEPARTMENT

By the method of harmonic analysis curves were fit to six sets of meteorological data using a yearly period for the past 41 years.

Routine work included wind and weather calculations, sheep thyroid count, sheep radioanalysis, and aquatic biology calculations.

FOR THE MEDICAL DEPARTMENT

A report was issued on the study of trends and seasonal factors in plant wide absenteeism. A method of testing for major changes in the underlying trend of absenteeism was presented, (Letter: L. W. Smith to Dr. R. R. Sachs, "Trends and Seasonal Factors in Absenteeism").

A plant wide sample study of absenteeism has been started in order to obtain proper limits for controls on absenteeism now being developed. Preliminary results from this sample agree with the conclusions reached from earlier studies.

Routine reports were prepared on public health activity.

FOR THE EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

Further assistance was rendered in conducting the employee attitude survey. Gummed addressing labels were printed with employee's names and check distribution codes to facilitate distributing the questionnaires through regular payroll channels. IBM card designs and punching codes were established and the results of the survey were keypunched.

Two additional sets of gummed address labels were printed for mailing the Good Neighbor Fund election ballots and return envelopes.

Meetings were held with representatives of the Personnel Unit, Wage Rates, and Weekly Payroll, to formulate a plan for establishment of a centralized personnel file on IBM cards. When this file is set-up, all participating groups will have ready access to a wide range of personnel statistics and demography. (Letter: G. P. Ruderman to J. R. Cullen, "Personnel File".)

An analysis was made of the results of the recently conducted survey on "Training Problems" to ascertain opinions of persons who have participated in the programs. (Letter: L. G. Waters to Dr. W. I. Patnode, "Attitude of Hanford Works Training Programs").

FOR THE SALARY ADMINISTRATION STAFF

A study was conducted to test the applicability of employing a method of averages to fit straight lines needed for Salary Administration surveys. At present the method of least squares is used. The method of averages consists

1197982

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of dividing the data, after ordering, into three parts. Averages of the two variables under consideration are calculated for the highest and lowest thirds. These points determine the slope of the straight line. The line is made to pass through the overall average point of the two variables, and the equation is thus established. To compare results of fitting straight lines by this method and the method of least squares, nine professional curves were calculated from data of the salary survey for 1952. In every case, the curves fitted by the two methods were similar. If the method of averages is used for evaluating survey results in 1953, much computational work will be eliminated, and economy will result from reduced IBM machine and operator time, (Letter: G. P. Ruderman to W. P. McCue, "Comparison of Methods of Fitting Straight Lines").

Routine IBM reports for Salary Administration were prepared.

FOR THE FINANCIAL DEPARTMENT

The work order cost reports were converted to the new uniform cost code system. This entailed revision of the machine control panels in addition to converting the old codes to the corresponding new codes on 14,000 work order master cards and 31,000 detail cards.

Accuracy control procedure on payroll preparation was revised to provide group control totals by 1000 pay numbers rather than by 5000 as previously done. This change decreases the time required to locate an error and ties up only a small fraction of the payroll while an error is being corrected.

Concurrent with the establishment of the uniform cost code system, machine preparation of salary liquidation for all Departments of the Nucleonics Division was undertaken. The 941-a Quarterly Social Security Report and a report of employees eligible for participation in the General Electric Pension Plan were also prepared.

Routine work included preparation of the weekly payroll, weekly payroll statistics, exempt salary distribution, work order cost for Manufacturing, Utilities and General Services, and Community and Real Estate Services Departments, motorized equipment cost, and weekly payroll distribution.

The unit cost of IBM operations relative to providing an employee with his pay check during the past four months has been as follows:

Month	Unit cost per check issued
July	44.7 cents
August	41.8 cents
September	37.0 cents
October	33.4 cents

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FOR THE UTILITIES AND GENERAL SERVICES DEPARTMENT

A re-examination was made of the estimates of power material consumption as presented in a letter to R. J. Gandy of the Operations Procurement Unit on February 7, 1952. Actual consumptions were checked against estimates made by the field, and by the Statistics Unit. In general, statistical predictions were sufficiently accurate to suggest that in the future statistical analysis can play an important part in the control of these inventories.

A sampling procedure was established for the Procedure Analysis Unit in connection with a study on classified documents. A sample will be drawn in each area mail room to determine, within limits, the actual percentage of classified documents being transmitted by registered mail rather than by re-routing through classified files. Based upon the volume of classified mail, sample sizes were computed, and a random sampling plan devised, (Letter: G. P. Ruderman to J. S. Marshall, "Sampling Plan For Classified Files Study").

Data collection on the accident cost study for the Safety and Fire Protection Unit was begun this month.

NEW STATISTICAL AND COMPUTING METHODS

A new general purpose control system for the Card Programmed Calculator has been developed. It is referred to as the SEMAC (series evaluations and mixed-decimal arithmetic calculations) system and will be used primarily for scientific computation. It was designed as an optimum combination of flexibility and ease of operation for problems covering wide ranges of values and the common transcendental functions. The system utilizes both floating decimal and no-decimal operation. The floating decimal system automatically locates the decimal at every stage of the calculation and thus makes easy the problem of writing machine instructions (programming). The no-decimal system handles digits with no regard for decimal location. Hence the mathematician must keep track of the decimal while writing the machine instructions by including proper shift coding. Though the no-decimal system is more difficult to program, it is faster during calculation. By means of transfer coding provided in the SEMAC system the mathematician may transfer the calculation back and forth between the two systems automatically. Thus he can weigh the relative advantages of the two systems in light of programming complexity and amount of calculation involved and use the proper combination to provide the most economical over-all solution.

In addition to the arithmetic operations the SEMAC system will evaluate the following functions with single card instruction: square root, a^n for positive integral values of n, sine, cosine, hyperbolic sine and cosine, arcsine, arctangent, hyperbolic arcsine and arctangent, logarithms, positive and negative exponentials, and the Bessel functions $J_o(x)$, $J_1(x)$, $I_o(x)$, and $I_1(x)$.

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The International Business Machines (IBM) Corporation is giving the SEMAC system national distribution through its Applied Science Department. It is a major development in the use of the IBM Card Programmed Calculator and utilizes very fully all component parts oi the machines. The SEMAC was developed by W. C. McGee and D. D. McCracken of the Computing Unit.

A table of 100,000 ten digit random numbers was prepared for general use in statistical work. Machine calculation pertaining to the establishment of confidence levels to be associated with various sampling techniques is complete.

A critical examination was made of the various techniques which are available for using the range instead of variances in analysis of variance techniques. Under certain conditions the range method is as efficient as the standard technique with a considerable savings in time. The results of this study will be made available to the interested parties.

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APPENDIX A

Computing Services	Percent of Total Service	Number of Reports
FOR THE MANUFACTURING DEPARTMENT		
Metal Quality Preparation	0.2	1
Metal Preparation Data Reduction	0.4	3
Total	0.6	4
FOR THE ENGINEERING DEPARTMENT		
S.R.Exposure Calculations	1.5	0
Group 9 Metal Studies	0.4	1
Lattice Conductance Studies	0.3	2
Tube Power Breakdown at Charge	0.1	0
Solution of Dilatometer	0.0	1
Ruptured Slug Data	0.1	20
B-Pile Graphite Lattice Conductance	0.0	1
Size of Cube vs. Buckling.	2.4	1
Least Square Cosine Curve Fitting	8.0	3
Slug Temperature Distribution	1.4	3
Neutron Flux	1.8	1
Unsteady State Slug Temperature	1.6	2
Phenomenological Theory of Resonance Capture	4.1	1
Pile Factors in Pile	0.1	1
Infinite Determinant	4.1	0
DR Test Well Experiments	0.9	2
Eigenvalue Calculation	0.7	1
Total	27.5	40
FOR THE RADIOLOGICAL SCIENCES DEPARTMENT		
Monthly Meteorlogical Study	0.4	2
Weather Station Wind Study	6.2	2
Zoology Thyroid Counts	0.1	2
Zoology Sheep Radioanalyses	0.1	2
Aquatic Biology (Regular)	0.1	1
Isotopic Buildup & Decay	0.5	5
Harmonic Analyses	0.8	2
Total	8.2	16
FOR THE MEDICAL DEPARTMENT		
Public Health Activities	0.1	3
Absenteeism Study	0.1	1
Total	0.2	4
FOR THE EMPLOYEE & PUBLIC RELATIONS DEPARTMENT		
HW Attitude Survey	0.4	0
FOR THE SALARY ADMINISTRATION STAFF		
Exempt Salary Statistics	1.2	8
Exempt Salary Curve Fitting	0.1	7
Total	1.3	15

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APPENDIX A
(continued)

Computing Services	Percent of Total Service	Number of Reports
FOR THE FINANCIAL DEPARTMENT		
Exempt Salary Distribution	0.1	1
Technical Cost Distribution	1.0	7
Manufacturing Payroll Distribution	5.0	9
General Payroll Distribution	3.1	6
Manufacturing Work Order Cost	6.7	50
Community Work Order Cost	2.7	31
General Work Order Cost	4.5	45
Payroll Preparation	18.5	140
Payroll Statistics	7.6	25
Balance Accumulative Earnings	2.8	0
Total	52.0	314
FOR THE UTILITIES AND GENERAL SERVICES DEPARTMENT		
General Motorized Equipment report	4.1	19
Electrical Billing	3.1	2
Stores Procurement Actions	1.1	2
Probability Study	1.2	1
Total	9.5	24
FOR THE ATOMIC ENERGY COMMISSION		
AEC Quarterly Motorized Equipment	0.3	0
GRAND TOTAL	100.0	417

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APPENDIX B

Statistical Services	Percent of Services
MANUFACTURING DEPARTMENT	37.5
S. F. ACCOUNTABILITY STAFF	3.2
ENGINEERING DEPARTMENT	34.2
MEDICAL DEPARTMENT	9.7
EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT	3.5
SALARY ADMINISTRATION STAFF	2.9
ATOMIC ENERGY COMMISSION	9.0
	100.0

APPENDIX C

Statistical & Computing Services	Percent of Services
MANUFACTURING DEPARTMENT	5.2
S. F. ACCOUNTABILITY STAFF	0.4
ENGINEERING DEPARTMENT	28.4
RADIOLOGICAL SCIENCES DEPARTMENT	7.2
MEDICAL DEPARTMENT	1.3
EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT	0.8
SALARY ADMINISTRATION STAFF	1.5
FINANCIAL DEPARTMENT	45.5
UTILITIES AND GENERAL SERVICES	8.4
ATOMIC ENERGY COMMISSION	1.3
	100.0

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EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

SUMMARY -- OCTOBER, 1952

The number of applicants interviewed in October was 1,382 as compared with 1,531 for September. Of these applicants, 393 were individuals who applied for employment with General Electric for the first time. In addition, 104 new applicants applied by mail. Open, nonexempt, nontechnical requisitions decreased from 221 at the beginning of the month to 182 at month end. Total Plant roll increased by two people during the month. Turnover decreased from 2.60% in September to 1.38% in October. During October, 81 new requests for transfer to other type work were received by Employment and 14 transfers were effected. Attendance recognition awards were distributed for 89 employees who qualified for one-year awards during August and September, and for 81 employees who qualified for two-year awards during August and September.

Advertisements for stenographers were placed in newspapers in ten Midwest and Southwest cities October 26, 27 and 28. Twenty-nine written inquiries have been received by month end.

Three employees died during the month, and seven employees retired. One hundred and seventy-nine visits were made to employees confined at Kadlec Hospital and 74 checks were delivered to employees confined at the hospital or at home. At month end, participation in the Pension Plan was 93.1%, in the Insurance Plan 98.6%, and in the Employee Savings and Stock Bonus Plan 43.3%. At month end there were 922 registered under Selective Service, and 765 military reservists were on the roll. Since August 1, 1950, 256 employees have terminated to enter military service, of which 36 have returned, 3 have not claimed reemployment rights, leaving 217 still in military leave status.

Orientation of new employees was presented daily throughout the report month. A total of 109 new employees attended this program. Of this number, 96.3% have signed up to participate in the Pension Plan, 99.08% in the Insurance Plan, and 67.8% in the Good Neighbor Fund.

In conducting the attitude survey questionnaires were administered on October 9 and 10, and the executed questionnaires were picked up through the media of collection boxes on October 11 and 13. During the week of October 13, the questionnaires were sorted and prepared for transmittal to the Statistical and Computing Section, who accepted responsibility for processing IBM cards for Richardson, Bellows, Henry and Company. By month end, this assignment was nearing completion.

A booklet entitled "Your Part In The GE Insurance Plan", together with an insert outlining the new and improved benefits of the Insurance Plan, was distributed to all supervisors under date of October 17, 1952. One Hundred and fifty-four letters explaining the improved benefits of the Insurance Plan were sent to all hospitals and doctors within this area along with the booklet and insert. Letters were also written to hospitals in the area for the purpose of supplying them with new Insurance Benefit Claim forms and giving them some explanation of the use of the new forms. In addition, similar material was sent to hospitals outside the area in which a good many employees are hospitalized.

1197989

Employee and Public Relations
Summary

At month end inserts for the insurance booklet outlining the new and improved benefits of the plan were being mailed to all employees at their home addresses, together with a letter, which among other things, emphasized that the new and improved benefits applied to employees only.

Following informal discussions with appropriate AEC personnel, a Reimbursement Authorization was submitted to the Commission concerning the new Employee Purchase Plan, effective throughout the Company October 1, 1952.

It was the consensus of the Department Heads who reviewed the manual "GE Selection Program for Supervisors" that the program had considerable merit but it was not desired to introduce it at Hanford Works on a formal basis throughout the organization. It was agreed that the manual itself could serve a very useful purpose as a guide for selecting first line supervisors and that a sufficient number of copies should be procured to place in the hands of key departmental personnel. It was, of course, emphasized that the Employee Relations Section would be in a position to assist in iniating the program formally within any particular segment of the organization. On October 16, one hundred and sixty-three copies of the manual were transmitted to the various Department Heads.

The mechanics to be followed in the election of Trustees for the Good Neighbor Fund were established during the month by the Election Committee, a sub-committee of the Steering Committee, and ballots were distributed to all eligible employees on Friday, October 31. Red feathers were also distributed on the same date to all members of the Fund.

On October 9, sixty-eight pensioned employees attended the second annual "homecoming day" as guests of the Company at a luncheon held in the local hotel. The General Manager addressed the group. Following the formal program, a temporary slate of officers was elected whose endeavor will be to establish a club for retired employees.

The Company sponsored a luncheon meeting on October 23 for all Hanford Works employees who had 25 or more years of GE service, as well as those who had 25 years of combined GE and du Pont service. The General Manager made a brief talk.

Training Services Section objectives scheduled for October, 1952, and other training activities were completed as follows: Management Orientation was again presented to all new exempt personnel on October 6 with 14 persons in attendance. Supervisor's Handbook program was attended by 7 supervisors when presented on Tuesday, October 7. G.E. 9-Point Better Job program was presented on October 7 with 10 members in attendance. Effective Business Management was presented on October 15 to 19 new supervisory personnel. Labor-Management Relations program was presented on October 16 with 19 new supervisory personnel in attendance. Policy Seminar program was presented to 13 new supervisors on October 22 and 23. Employee Benefit Plans program was presented to 12 new supervisors on October 24. Principles and Methods of Supervision - A total of 82 supervisors completed the study of Principles and Methods of Supervision throughout October. A presentation of Management Development at Hanford Works was made by the Manager of Training Services as a member of a panel at the Second Western Regional Training Directors Conference in Los Angeles on

1197990

Employee and Public Relations
Summary

October 24-25. Supervisor's Handbook Additions and Revisions including 26 revised pages were distributed to all holders of the Supervisor's Handbook during the month of October. Project Section Vendor Inspectors Special Program was presented at the request of the Project Engineering Section to 14 vendor inspectors in attendance. Training Section was responsible for three days activities. Pacific Northwest Personnel Management Association Annual Conference, held in Victoria, Canada, was attended by one member from the Training Section on October 30, 31 and November 1. A special program of Labor-Management Relations Forum is being arranged jointly by Union Relations Section and Training Section to be presented in November and December.

Arbitration of the dispute between the Company and the HAMTC over payment for lunch period during call-in or hold-over time is scheduled for November 6, in Richland. Charles P. Moriarty, Seattle attorney, has been selected as arbiter. An investigation of the incident involving a physical encounter between two Metal Workers in the 300 Area resulted in (1) the suspension of one of the participants for 5½ days without pay and (2) the annotation of the other individual's personnel record to reflect his culpability in the matter and his ineligibility for rehire. The latter individual had voluntarily terminated during the investigation. We are now informed that he is back in the area seeking re-employment and threatening to take his case to the local papers and the Veterans' Administration. The Employment Office has no record of his having applied for rehire. The Company appeared before the Superior Court of Benton County on October 30, to answer the Complaint of R. E. Mercer, Community Fireman recently discharged for fighting on the job. The Complaint alleges breach of Contract and is designed to force arbitration of the discharge. The Company was represented by Gerald de Garmo of the firm Allen, Hilen, Froude, de Garmo and Leedy. The case was continued until November 6. A supplemental agreement modifying the existing vacation plan applicable to extended workweeks was presented to the Council on October 3. By letter of October 21, we were informed that the HAMTC had voted not to concur in the proposal. Further discussions were held on October 27 at which time the Council agreed to again present the matter to the membership of the November 12 meeting. Discussions on October 7 and 28, between the Company and the Atomic Energy Commission established understandings with respect to certain maintenance responsibilities in North Richland which have historically been performed by construction labor. By virtue of the fact that these functions are managed by GE and form an integral part of a larger system, they properly come within the purview of General Electric responsibilities. It is anticipated that the Commission will enter discussions with the unions involved in an effort to effect a transfer of this work to the General Electric Company. The relocation of a large stock pile of line equipment and material belonging to Electrical Distribution in the 200 East Area was necessary due to contemplated construction on the site. GE Linemen protested a decision to move the material with construction forces, claiming jurisdiction over the work. It was later determined that the work schedule of GE Transportation forces could be revised to accomplish this work in the time allocated by the Commission. The work was thereafter withdrawn from construction and assigned to GE Transportation in line with the traditional policy of using such forces to move bulk material on the Project. Linemen have continued to voice their objections.

1197991

_ployee and Public Relations
Summary

Problems associated with the negotiation of new Project Agreements which have been in progress for several months for the most part have been resolved. Original plans for a Master Agreement applicable to all crafts have been successful with the basic trades but shop crafts have executed only addenda to their standard area agreements. A work stoppage involving Electricians on Newberry-Neon Electric payroll occurred during the period of October 1 through 6. The strike was the result of a dispute over contract matters. Understandings reached in a meeting with International Representatives in Washington, D.C., on October 9, 10 and 11 served as a basis for an agreement reached at the local level in negotiations on October 17 and 18.

Reimbursement authorization was received from the Atomic Energy Commission covering a modification of our holiday pay policy for Community Firemen working under the Two-Platoon System. Joint applications and Supplemental Agreements from all Unions at the Hanford Works covering the proposed productivity and cost-of-living adjustments were forwarded to the New York Office. The BLS announced that the cost-of-living index of September 15, 1952 was 191.4.

A total of 97 releases were distributed during the month. Of these, 38 were sent to the "local" list, 18 to the media throughout the Northwest, 16 to hometown and college papers, and 28 received special distribution.

_epresentative of Investor's Readers, published by Merrill Lynch, Pierce, Fenner and Beane, visited the News Bureau and received information on Richland for future use in that publication.

A feature story about Hanford Works was sent to the MONOGRAM at the request of the editor.

A feature story on the Richland air raid system, was sent to the PACIFIC BUILDER AND ENGINEER magazine.

The Community NEWSLETTER was written and distributed for October.

A total of five papers was presented for review and clearance. Two of these papers were presented during the month.

Civil defense information and news stories were released during the month concerning the results of the recent air raid test and tie-in between Civil Defense and Fire Prevention Week.

Twelve motion pictures were procured for group showings by other sections, including films produced by the General Electric Company.

The 23rd Hanford Works Science Forum program was broadcast over radio station KWIE during October.

1197992

Employee and Public Relations
Summary

Two fifteen-minute interview programs were produced and recorded for the Public Health radio series, a regular weekly broadcast feature furnished to a local radio station.

Film footage for "No Comedy in Errors", a 16mm. black and white motion picture was completed and the work print reviewed by the working committee.

The Works NEWS "Get Out the Vote" campaign was continued throughout the month. This community service activity, brought to a conclusion in the October 31 issue, had been given more than three months of active promotion.

Assistance was given Union Relations in the recent dispute with the HAMTC. This involved preparation and production of three Employee News Letters and one letter to management over H. E. Callahan's signature; numerous news releases to the two local papers; Works NEWS stories and the preparation and placement of a 5 column by 14" advertisement in local daily newspapers.

The Health Bulletin for November and the Safety Topic of the Month were prepared and distributed.

Copy and art work for the new secretarial manual concerning the handling of classified documents entitled "Confidentially Yours" was completed. Production of the contents and cover will be completed within six to eight weeks.

A total of 8,864 prints were produced during the month. Of these, 6,208 were for employee identification and area admittance badges.

1197993

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

OCTOBER, 1952

ORGANIZATION AND PERSONNEL

General

There were no organizational changes during October.

Employee Relations

Effective October 7, 1952, Pauline Osborn, General Clerk C, was deactivated-personal illness.

Effective October 27, 1952, Betty H. Waldbauer, Messenger, entered the Investigation and Personnel Files Unit to replace Judith A. Porter who is being upgraded to Motor Messenger.

Training Services

There were no organizational changes during October.

Public Relations

Effective October 6, 1952, R. Kenley Maurer, Publicity Writer, was added to Radio and Special Events Group, Public Relations Section.

Union Relations

Effective October 1, 1952, W. O. Willard, Senior Wage Analyst, Wage Rates, transferred to Salary Administration.

Effective October 20, 1952, Ramona G. Henderson, General Clerk C, transferred from the Engineering Department to Wage Rates.

Number of Employees on Roll	October, 1952
Beginning of Month	106
End of Month	107
Net Increase	1

1197994

Employee and Public Relations

ACTIVITIES

Employee Relations

Employment	September, 1952	October, 1952
Applicants interviewed	1,531	1,382

393 of the applicants interviewed during October were individuals who applied for employment with the Company for the first time. In addition, 104 applications were received through the mail.

Open Requisitions	September, 1952	October, 1952
Exempt	0	0
Nonexempt	221	182

Of the 221 open, nonexempt, nontechnical requisitions at the beginning of the month, 116 were covered by interim commitments. Of the 182 open, nonexempt, non-technical requisitions at month end, 96 were covered by interim commitments. During October, 99 new requisitions were received requesting the employment of 128 nonexempt, non-technical employees.

	September, 1952	October, 1952
Employees added to the rolls	150	126
Employees removed from the rolls	233	124
NET GAIN OR LOSS	-83	2

Of the 124 employees removed from the rolls, none were removed due to lack of work.

Turnover:

	September, 1952		October, 1952	
	Male	Female	Male	Female
Including employees who were laid off for lack of work	1.90%	5.53%	.99%	3.09%
Excluding employees who were laid off for lack of work	1.90%	5.53%	.99%	3.09%

Over-all Turnover:

	September, 1952	October, 1952
Including employees who were laid off for lack of work	2.60%	1.38%
Excluding employees who were laid off for lack of work	2.60%	1.38%

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Employee and Public Relations

During October, 57 employees left voluntarily to accept other employment, 8 left to enter military service, and 3 left to enter business for self.

Transfer Data

Accumulative total of requests for transfer received since 1-1-52	579
Number of requests for transfer received during October	81
Number interviewed in October, including promotional transfers	122
Transfers effected in October, including promotional transfers	46
Transfers effected since 1-1-52, including promotional transfers	275
Transfers effected in October for employees being laid off	14
Number of stenographers transferred out of steno pool in October	0
Transfer requests active at month end	213

During October, 23 people whose continuity of service was broken while in an inactive status were so informed by letter.

Advertisements for stenographers were placed in newspapers in Davenport, Cedar Rapids, Des Moines, and Ottumwa, Iowa; Oklahoma City and Tulsa, Oklahoma; Omaha, Nebraska; Dallas, Texas; and Moline, Illinois, October 26, 27, and 28. Twenty-nine written inquiries have been received by month end.

A total of 11 operating railroad crewmen were given layoff notices October 25, 1952, as a result of the coal strike. It was possible to withdraw these notices the following week when the miners returned to work.

A total of 15 employees in the Chemical Helper-Trainee classification were given layoff notices due to lack of work on the 15th and 16th of October. At month end, 13 of the 15 had accepted transfers to other jobs; one was considering an offer of transfer; however, one elected to take a RCF separation although he had been offered two other jobs.

As a follow-up to direct recruiting in Denver during September, the Employment Supervisor together with a representative of the Design Section and a representative of the Instrument group, Separations Section, were in Denver on October 7 and 8 for interviews with several Design-Draftsmen and Instrument Mechanic applicants who had indicated interest in employment with the Company at Hanford Works. Offers were made to two Designers and one Draftsman, with the Draftsman scheduled to report in November, and the Designers late this year or early in 1953. Although five Instrument Mechanic applicants signified real interest in the work being carried on here they found it necessary to decline tentative offers due primarily to housing conditions, not only in Richland but in the vicinity.

During the month, data was gathered for the University of Chicago in cooperation with the Franklin-Benton County Vocational Director, to validate the General Educational Development Tests that are used to grant high-school diplomas of equivalency. Data was taken from the personnel folders of 52 employees who have been granted an equivalency diploma through G. E. D. Tests and 52 employees who are high school graduates. The purpose of r part of the study is to determine if persons who pass G. E. D. Tests and are granted

diplomas of equivalency compare favorably with high school graduates in a job situation. The University of Chicago will furnish the results of the country-wide study to all contributors of data.

During the month, the Organization and Policy Guide concerning reduction in forces was revised upon the recommendation of the Employee Relations Section in a manner to provide for transfer of personnel, together with transfer of a function between departments, in those instances when a force reduction is contemplated as a result of the transfer of a function. Further, the revised policy guide included a brief statement of the policy to be followed in selection of exempt personnel for layoffs due to lack of work.

Employment Statistics

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Community Firemen	Total
New Hires	5	99	--	104
Re-engaged		1	--	1
Reactivations	2	18	--	20
Transfers (from other Divisions)	1	--	--	1
Total additions	8	118	--	126

TERMINATIONS FROM THE ROLLS

Actual Terminations	7	70	2	79
Removals from rolls (deactivations)	5	37	--	42
Transfers (to other Divisions)	3	--	--	3
TOTAL TERMINATIONS	15	107	2	124

GENERAL

	9-1952	10-1952
Photographs taken	223	206
Fingerprint impressions (taken in duplicate)	223	194

PERSONNEL SECURITY QUESTIONNAIRES PROCESSED

	9-1952	10-1952
General Electric cases	100	102
Facility cases	69	50
TOTAL	169	152

Employee and Public Relations

INVESTIGATION STATISTICS

	9-1952	10-1952
Cases received during the month	178	133
Cases closed	655	162
Cases found satisfactory for employment	119	122
Cases found unsatisfactory for employment	11	4
Cases closed before investigation completed	5	1
Special investigations conducted	2	1

PERFECT ATTENDANCE RECOGNITION AWARDS

Total one-year awards to date	3,358
One-year awards made in October for those qualifying in August and September	89
Total two-year awards to date	962
Two-year awards made in October for those qualifying in August and September	81

Employee Services

The following visits were made with employees during the month:

Employee contacts made at Kadlec Hospital	179
Salary checks delivered to employees at Kadlec Hospital	66
Salary checks delivered to employees at home	8

At month end participation in Benefit Plans was as follows:

	September	October
Pension Plan	93.3%	93.4%
Insurance Plan	98.6%	98.6%
Employee Savings and Stock Bonus Plan	43.2%	43.3%

Three employees died during October, namely:

Karl A. List, W-8390-SS, Utilities and General Services
Mildred G. Bell (Shaw), W-8079-420, Medical
Louis C. Goldsmith, W-17401-733, Engineering

Thirty-nine letters were written to deceased employees' families during October, concerning payment of monies due them from the Company, and also to answer their questions.

Since September 1, 1946, 101 life insurance claims have been paid totaling $592,000.

Employee and Public Relations

Seven employees retired during October, namely:

Louis J. Buescher, W-8609-SS, Normal Retirement
Louis A. Galloway, W-5246-VGM, Normal Retirement
Emily O. Decker, W-3499-B, Normal Retirement
Ethel L. Martin, W-2912-UT, Normal Retirement
Newton D. Smith, M-734-D, Optional Retirement
Charles H. Cook, W-4122-MT, Optional Retirement
Byron R. Poisel, W-8526-SS, Optional Retirement

During October, 57 letters were written to retired employees providing them with information of general interest. To date 226 employees have retired at Hanford Works, of which 114 are continuing their residence in the vicinity.

Orientation of new employees was presented daily throughout the report month. A total of 109 new employees attended this program. Of this number, 96.3% have signed up to participate in the Pension Plan, 99.08% in the Insurance Plan, and 67.8% in the Good Neighbor Fund.

A booklet entitled "Your Part In The GE Insurance Plan", together with an insert outlining the new and improved benefits of the Insurance Plan, was distributed to all supervisors under date of October 17, 1952. One hundred and fifty-four letters explaining the improved benefits of the Insurance Plan were sent to all hospitals and doctors within this area along with the booklet and insert. Letters were also written to hospitals in the area for the purpose of supplying them with new Insurance Benefit Claim forms and giving them some explanation of the use of the new forms. In addition, similar material was sent to hospitals outside the area in which a good many employees are hospitalized.

At month end inserts for the insurance booklet outlining the new and improved benefits of the plan were being mailed to all employees at their home addresses, together with a letter, which among other things, emphasized that the new and improved benefits applied to employees only.

In conducting the attitude survey questionnaires were administered on October 9 and 10, and the executed questionnaires were picked up through the media of collection boxes on October 11 and 13. During the week of October 13, the questionnaires were sorted and prepared for transmittal to the Statistical and Computing Section, who accepted responsibility for processing IBM cards for Richardson, Bellows, Henry and Company. This key punching job was undertaken on an overtime basis and shortly after work was commenced it was found that the job would be more time consuming than had been anticipated. By month end, this assignment was nearing completion. As soon as all cards have been key punched they will be forwarded to Richardson, Bellows, Henry and Company in New York.

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Employee and Public Relations

J. P. Pierard attended a convention of the National Association of Suggestion Systems in Chicago on October 20 and 21.

A representative of the Employee Relations Section attended the Pacific Northwest Personnel Management Association conference in Victoria, B.C., commencing October 30.

The mechanics to be followed in the election of Trustees for the Good Neighbor Fund were established during the month by the Election Committee, a sub-committee of the Steering Committee, and ballots were distributed to all eligible employees on Friday, October 31. Red feathers were also distributed on the same date to all members of the Fund.

Following informal discussions with appropriate AEC personnel, a Reimbursement Authorization was submitted to the Commission concerning the new Employee Purchase Plan, effective throughout the Company October 1, 1952. In addition, during the month, discussions were had with the GE Supply people in Portland and with the local GE dealer. Through these discussions assurance was given that both would be happy to participate to the fullest in the revised plan and that the plan could be made retroactive to October 1, 1952, despite the fact that we were not in a position to announce the new plan officially by month end. A news story for the Works News announcing the new plan, together with Mr. Boulware's pamphlet outlining the significant phases of the plan which is to be sent to all employees, were being held in readiness at month end awaiting approval for release.

Several weeks ago a meeting was held with all Department Heads after they had an opportunity to review critically the manual entitled "GE Selection Program for Supervisors". It was the consensus of the group that the program seemed to have considerable merit but that it was not desired to introduce it for Hanford Works throughout the organization on a formal basis. It was, however, agreed that the manual itself could serve a very useful purpose as a guide for selecting first line supervisors and it was further agreed that a sufficient number of copies should be procured to place in the hands of key departmental personnel. It was, of course, emphasized that the Employee Relations Section would be in a position to assist in iniating the program formally within any particular segment of the organization. On October 16, one hundred and sixty-three copies of the manual were transmitted to the various Department Heads. Management of the Separations Section, Manufacturing Department, has indicated keen interest in the program.

The Company sponsored a luncheon meeting on October 23 for all Hanford Works employees who had 25 or more years of GE service, as well as those who had 25 years of combined GE and du Pont service. The General Manager made a brief talk.

On October 9, sixty-eight pensioned employees enjoyed the second annual "homecoming day" as guests of the Company at a luncheon held in the local hotel. The General Manager addressed the group and all in attendance seemingly reflected pride in the Company's continuing interest in their welfare. Following the formal program, a temporary slate of officers was elected whose endeavor will be to establish a club of retired employees.

Employee and Public Relations

Military Reserve and Selective Service

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on the rolls	* 765
Number of reservists classified in Category A	125
Number of reservists classified in Category B	57
Number of reservists classified in Category C	78
Number of reservists classified in Category D	505
Number who returned to active duty to date	119
Number who returned to active duty in October	4
Number of reservists for which delays have been requested	49
Number of reservists classified in Category B	4
Number of reservists classified in Category C	4
Number of reservists classified in Category D	41
Delays requested (including renewals)	112
Delays granted	104
Delays pending	0
Delays denied	5
Delay requests recalled	3

The statistics with respect to employees registered under Selective Service are as follows:

Employees registered	922
Employees registered who are veterans	369
Employees registered who are non-veterans	553
Deferments requested to date (including renewals)	767
Deferments granted	553
Number of employees for which deferments have been requested	271
Number of employees classified in Category B	6
Number of employees classified in Category C	12
Number of employees classified in Category D	253
Deferments denied and appealed at state levels	8
Deferments denied and appealed at local levels	7
Deferments denied and pending at national level	4
Deferments denied by local board and not appealed	2
Deferments denied by state board and not appealed	13
Deferments denied at national level (by Gen. Hershey's office)	1
Deferments denied at national level (by President)	3
Deferments denied by local and state boards and pending for review	0
Deferments requested, employees later reclassified	64
Deferments requested, later withdrawn	61
Deferments pending	51

* Corrected total

mployee and Public Relations

Military terminations since 8-1-1950 are as follows:

Reservists recalled	119
Selective Service	133
Female employees enlisted	4
TOTAL	256

Employees returned from military service:

Reservists	27
Selective Service	9
TOTAL	36

Known number not claiming reemployment rights 3

Number of employees still in military leave status 217

Suggestions and Insurance

ggestion System

	September, 1952	October, 1952	Total Since 7-15-47
Suggestions Received	276	301	10,034
Acknowledgments to Suggesters	238	299	
Suggestions Pending Acknowledgment	38	2	
Suggestions Referred to Depts. for Investigation	238	299	
Suggestions Pending Referral to Departments	38	2	
Investigations Completed and Suggestions Closed	285	286	
Suggestions Adopted - No Award	2	0	
Adopted Suggestions Approved by Committee for Award	54	36	
Total Net Cash Savings	$5,978.16	$21,529.25	
Total Cash Awards	$ 745.00	$ 1,940.00	

The highest award of $570 was made to an employee in the Separations Section for his suggestion to reduce the number of heel jet assemblies at the tank farm from 26 steam and 26 process to 8 steam and 8 process. This suggestion resulted in considerable savings in material.

Two employees in the Reactor Section received the second highest award in the amount of $400 ($200 each) for their joint suggestion regarding a simply constructed tip off which would meet the requirements of discharge operations in the 100 Areas in those ses where the discharge trough is not used. Savings were in labor and material.

1198002

Employee and Public Relations

An employee in the Metal Preparation Section received the third highest award of $350 for his suggestion to resize canning sleeves by shrinking the reject sleeves over a hardened and ground mandrel larger than the inside of the sleeve by heating and inserting the cold mandrel into the sleeve and chilling both in cold water. Considerable labor savings were realized from this suggestion.

Workmen's Compensation

One case under litigation was closed during the month.

Life Insurance

Code information which is known only to Home Office Life Underwriters Association has been furnished 74 insurance companies and investigation agencies during the month of October, 1952. This is in accordance with an arrangement with the Underwriters whereby employees on this project might be insured on the same basis as those working elsewhere.

Insurance Statistics

	September, 1952	
Claims reported to Department of Labor and Industries	Long Forms 114	Short Forms 684
	October, 1952	
	109	1048
Total Since Sept., 1946	11,930	

	September, 1952	October, 1952
Claims reported to Travelers Insurance Co.	12	* 11

Total since Sept., 1946 - 668

* Of the claims reported to Travelers Insurance Company during the month nine were property damage claims, one was bodily injury, and one was both bodily injury and property damage.

1198003

Employee and Public Relations

TRAINING SERVICES SECTION

Training Services Section objectives scheduled for October 1952 and other training activities were completed as follows:

MANAGEMENT AIDS:

MANAGEMENT ORIENTATION was again presented to all new exempt personnel on October 6 with 14 persons in attendance. This is the introductory program which welcomes new exempt people to the management team and includes a discussion with regard to the basic tools of supervisory-management.

SUPERVISOR'S HANDBOOK program was attended by 7 supervisors when presented on Tuesday, October 7. This program in seminar fashion familiarizes supervisors with the highlights and convenience of using the Supervisor's Handbook as a management tool.

G.E. 9-POINT BETTER JOB program was presented on October 7 with 10 members in attendance. This management program to introduce this "way-of-life" is the method used to acquaint new exempt personnel with the basic human relations required in a sound plan of human working relationships.

EFFECTIVE BUSINESS MANAGEMENT was presented on October 15 to 19 new supervisory personnel. This program, which includes the three 1½ hour discussions of HGBSO, a review of how to read the General Electric Annual Report, and an explanation of uniform interpretation of annual benefit plans status report to employees, continues to gain greater acceptance since it ties in the relationship of the individual supervisor and his employees with the over-all economic system.

LABOR-MANAGEMENT RELATIONS program was presented on October 16 with 19 new supervisory-management members in attendance. This program includes a review of the philosophy of operating under a union contract and spirit and intent of the major agreement at Hanford Works to help bring about a better understanding on the part of supervisory-management in dealing with labor-management problems.

SPECIAL SUPERVISORY CONSIDERATIONS program was presented on October 16 with 23 new supervisory personnel in attendance. This discussion program includes a session on cooperation, cost control, and accountability of S-F materials as three major considerations of management personnel.

POLICY SEMINAR program was presented to 13 new supervisors on October 22 and 23. This two-day program is a seminar discussion to gain uniformity of interpretation and administration of plans, policies and procedures as included in our policy guides.

EMPLOYEE BENEFIT PLANS program was presented to 12 new supervisors on October 24. This program is designed to acquaint new supervisors with the responsibility of better understanding of G.E. employee plans which enable the supervisor to become a reliable source of information to his employees about these important benefits.

1198004

Employee and Public Relations

TRAINING SERVICES SECTION

MANAGEMENT SKILLS:

PRINCIPLES AND METHODS OF SUPERVISION - Throughout October, four groups (32, 33, 34 and 35) of supervisors completed the study of Principles and Methods of Supervision. A total of 82 supervisors were enrolled in these groups and will be combined at a dinner meeting to be held early in November at which time they will receive their completion certificates. Additional PMS groups will be conducted in the future.

MANAGEMENT DEVELOPMENT:

A review of the interim text material which was just recently revised by New York on the course for Better Business Management has been made and consideration has been given to approve a pilot group at Hanford Works to proceed through this program. It is considered essential for good development that our management should be given the opportunity to participate in this program which has proved so successful.

A presentation of Management Development at Hanford Works was made by the Manager of Training Services as a member of a panel at the Second Western Regional Training Directors Conference in Los Angeles on October 24-25. In this presentation the philosophy and objectives of developing sound management personnel was included and was well accepted by participating training directors.

OTHER TRAINING ACTIVITIES AND PRODUCTION:

SUPERVISOR'S HANDBOOKS were issued to new supervisory personnel as requested by senior management at Hanford Works. Following is a summary of Handbook distribution to date:

Number of handbooks issued prior to October 1, 1952	- 1338
Number of handbooks issued during October	- 13
Number of handbooks returned during October	- 8
Number of handbooks issued to date	- 1343
Number of handbooks on hand	- 157
Total number of handbooks	1500

A few of the handbooks on hand that have been returned by terminating members of management are found to have so many pages missing that they are at present unusable but will be maintained in our stock.

SUPERVISOR'S HANDBOOK ADDITIONS AND REVISIONS including 26 revised pages were distributed to all holders of the Handbook during the month of October. This total revision was made to Section 8, Employee Benefit Plans Section of the Handbook.

1198005

TRAINING SERVICES SECTION

PROJECT SECTION VENDOR INSPECTORS SPECIAL PROGRAM was presented at the request of the Project Engineering Section to 14 vendor inspectors in attendance. During this two week program, Training Section was responsible for three days activities. This included the highlights of Management Aid programs in order that these vendor inspectors who travel constantly for General Electric Company from Hanford Works would better understand the activities that are progressing at Hanford Works and to assist them in gaining a desirable attitude to properly represent our Company and better understand our plans, policies and procedures. This was the second of these programs and completes having all vendor inspectors attend such an activity.

MATERIAL AND INFORMATION REQUESTED: During the report period a total of 40 transcripts were requested by unit personnel of the programs supervisory-mangement of these units have attended to date. Several copies of "Is Your Economics on Straight?" and the G.E. 9-Point Supervisor's Guide were requested during this report period.

PACIFIC NORTHWEST PERSONNEL MANAGEMENT ASSOCIATION ANNUAL CONFERENCE, held in Victoria, Canada, was attended by one member from the Training Section on October 30, 31 and November 1. He reports that this was an extremely worth-while conference since a considerable section of the program was devoted to training activities.

A special program of LABOR-MANAGEMENT RELATIONS FORUM is being arranged jointly by Union Relations Section and Training Section to be presented in November and December to Hanford Works senior management (O&PG Lists 1 & 2) to give them an opportunity to discuss any problems directly or indirectly related to human relations activities in the union relations field and to assist them to be kept current in our labor-management relations policies.

1198006

Union Relations

UNION RELATIONS - OPERATIONS PERSONNEL

A bulletin from the Hanford Atomic Metal Trades Council to all stewards dated October 2, 1952, instructed all bargaining unit employees to refuse call-in time unless the Company agreed beforehand that they would receive a lunch after four hours' work and an opportunity to eat it "ON COMPANY TIME." During the period from October 9 through 16 there was a concerted refusal to accept available emergency call-in time and on October 13, the refusal was extended to include hold-over time, which method had been successfully employed to obtain the required manpower for emergency work. Letters from the Manager, Employee and Public Relations, and from the General Manager had kept all employees informed regarding the Company's position in the dispute.

On October 15, both local papers carried front page news items regarding the controversy and on the same date a paid advertisement entitled SO YOU MAY KNOW WHY OPERATION OF VITAL HANFORD INSTALLATIONS IS BEING JEOPARDIZED provided a reproduction of an October 8 newsletter distributed to all GE employees. The following day (October 16) notices were given to maintenance forces that effective Monday, October 20, around-the-clock maintenance coverage would be placed into effect on a regular rotating shift schedule and in sufficient numbers to adequately cover any emergency condition. All maintenance employees were included in the shift work assignment.

Following a general meeting of the HAMTC that evening, the Manager, Union Relations, was contacted at home by Union representatives requesting an immediate audience and suggesting that a settlement could be achieved. Understandings arrived at in that meeting, and at a meeting on October 17, served as a basis for a proposed settlement of the dispute, a copy of which was informally transmitted to the Council on October 20. On October 23, this office was advised of the rejection of this proposal and the desire to take the matter to arbitration. An arbitration hearing is scheduled for Thursday, November 6, with Charles P. Moriarty, Seattle, acting as arbiter.

An incident involving a physical encounter between two Metal Workers in the 300 Area occurred on September 26. Acting on the recommendation of this office which was made after a thorough investigation of the incident, area supervision (1) suspended Mr. Pond for 5½ days without pay and (2) by letter of October 13 to Employment, requested that the personnel record of Mr. Haas, the aggressor in the dispute who had voluntarily terminated to attend school in Yakima, be annotated to reflect his culpability in the matter and his ineligibility for rehire. On October 29, we were informed that Mr. Haas had returned to the Tri-City Area and intended to apply for rehire with the Company. Haas had contacted his former supervisor and indicated that he had not been successful in gaining admittance to the trade school in Yakima. During the conversation, Haas is reported to have told his supervisor that it was his intention to contact the local paper and give them a story to the effect that the Company had refused to rehire him.

Haas is also reported to be considering going to the Veterans' Administration for their assistance in the matter. Our Employment Office had no record of Haas having applied for rehire since his termination.

On October 1, the Company received a summons to appear within 20 days to answer a complaint of the Hanford Atomic Metal Trades Council. The complaint alleged breach of contract, viz., Article XVI, ARBITRATION, and is designed to compel us to arbitrate the grievance of R. E. Mercer, Community Fireman, recently discharged for fighting on the job. The Company was represented by Gerald de Garmo of the firm Allen, Hilen, Froude, de Garmo and Leedy at a hearing before Judge Orris Hamilton of the Superior Court of Benton County in Prosser on October 30. The case was continued to November 6, 1952.

A supplemental agreement modifying the existing vacation plan applicable to extended workweeks was presented to the Council on October 3. The new plan utilizes the twelve-month period prior to the last full week in March of each year in calculating vacation allowances instead of the eight-week period prior to the vacation that is currently in effect. By letter of October 21, 1952, we were informed that the HAMTC had voted not to concur in the proposed modification. On October 27, further discussions were had on the matter at which time it was explained that the Company intended to place the new plan into effect for all nonunit and exempt people in the near future and offered the Council an opportunity to reconsider their previous rejection. Statistics were presented that showed in excess of 700 bargaining unit employees who stood to benefit retroactively on their 1952 vacation computation. The Council agreed to again present this matter to the membership at the next scheduled meeting on November 12.

Problems associated with the maintenance of certain facilities and services in North Richland was the subject of meetings on October 7 and 28, between representatives of GE and the Commission. Construction labor has historically performed maintenance work in connection with (1) the well pond and related facilities, (2) electrical distribution, (3) fire alarm system, (4) telephone exchange building, and (5) RS monitoring station, all of which are located within the physical confines of North Richland. By virtue of the fact that these functions are managed by GE and form an integral part of a larger system they properly come within the purview of GE responsibilities. The Commission, for the most part, is in accord with the logic contained in this argument and considers this an appropriate time to make a changeover due to the transition from AJ to Kaiser Engineers as the prime cost-plus-a-fixed-fee contractor. This office took exception to the Commission's apparent intention of accomplishing the changeover without prior notice or discussion with the Unions on the basis that such action would be difficult to defend in the event the dispute resulted in a work stoppage which later was adjudicated by the Davis Panel or in arbitration. It was our recommendation that the matter be discussed with the Unions during current contract negotiations in the hope that it could be accomplished as part of the give and take of collective bargaining.

Employee and Public Relations

Late in September, the AEC requested the relocation of a large stockpile of line equipment and material belonging to Electrical Distribution and physically located in the 200-E Area, in order to erect a construction facility on the site. A work order was provided to Transportation, who, because of other priority work, determined that the relocation of the storage area could not be accomplished in the time specified by the Commission. Thereafter, a work order was issued by the AEC directing the Kaiser Engineers to perform the work. Objections were immediately raised by GE Linemen through the Council and a walkout was threatened. An investigation of the matter disclosed that the date established by the Commission for completion of the job was realistic but it was found that sufficient GE forces were available to perform the work in the time available. Accordingly, at a meeting on October 17, the Council was informed that the Company was prepared to request the immediate removal of Kaiser forces from the work and the completion of the relocation by GE forces. With full knowledge that the Linemen were claiming the work involved, it was made clear at the time that the Company traditionally used Transportation people to move bulk material on the Project and it was the intention to continue that practice in this instance. On Monday, October 20, GE Transportation forces replaced Kaiser on the disputed work.

Grievance Statistics:

Status of Grievances

	1952 Unit	1952 Nonunit
Received this month	28	0
Received this year	262	9
Settled at Step I this month	17	1
Settled at Step I this year	105	7
Pending settlement at Step I at end of month	4	1
Settled at Step II this month	28	0
Settled at Step II this year	73	0
Pending settlement at Step II at end of month	157*	1
Brought to arbitration during the month	1	0
Pending settlement by arbitration	8**	0
Total number pending settlement	169	2

*Includes 67 bargaining unit grievances brought to Step II by the union prior to January 1, 1952, but not scheduled for Step II processing by the union to date.

**Includes four grievances brought to the arbitration level by the union prior to January 1, 1952, but no further action has been taken by the union to date.

Analysis of Grievances Received this Month

Department	Unit	Nonunit
Manufacturing Department		
Reactor Section	7	0

Employee and Public Relations

Department	Unit	Nonunit
Separations Section	14	0
Metal Preparation Section	2	0
Total for Department	23	0
Utilities and General Services Department		
Transportation Section	1	0
Plant Security & Services Section	1	0
Total for Department	2	0
Community Real Estate and Services Department		
700-1100-3000 Area Services Section	2	0
Total for Department	2	0
Radiological Sciences Department		
Radiological Records & Standards Section	1	0
Total for Department	1	0
Medical Department	0	0
Engineering Department	0	0
Law Department	0	0
Financial Department	0	0
Employee and Public Relations Department	0	0
GRAND TOTAL	28	0

Subject Unit Grievances		Subject Nonunit Grievances
Jurisdiction	8	None
Health-Safety-Sanitation	3	
Hours of Work	4	
Overtime Rates	1	
Sick Leave	1	
Seniority	1	
Information to Council	1	
Wage Rates	4	
Subject not covered by contract	5	
TOTAL	28	

Three meetings were held during the month for the purpose of processing grievances at the Step II level.

Employee and Public Relations

CONSTRUCTION LIAISON

A uniform Project agreement has been executed or commitments have been received from most of the basic trades including Laborers, Bricklayers, Painters, Cement Masons, Teamsters, Operating Engineers, Ironworkers, Roofers, Blacksmiths and Lathers. The Carpenters have not signed, which, in part, is attributed to difficulties being encountered regarding their reaffiliation with the Pasco-Kennewick Building Trades Council.

Electricians have signed a Hanford Addendum to the National Electrical Contractors Association Area Agreement.

Plumbers have executed an Addendum to the Washington State Agreement.

Sheet Metal Workers are currently in progress on the basis of a recommendation recently handed down by the Davis Panel and no further trouble is anticipated in signing an agreement with this craft but there remains the possibility that they too will present their standard form of agreement and seek an addendum thereto.

Boilermakers: It is expected that agreement will soon be reached with this craft which will take the form of an addendum to the Seven Western States Agreement.

Asbestos Workers: Discussions are in progress with the Asbestos Workers. It appears probable that some form of letter agreement will be exchanged to formalize Project understandings.

Machinists: A contract dispute with the Machinists is currently before the Davis Panel and appears to be stalemated pending a recommendation from that body.

Work Stoppages - Actual or Threatened:

A work stoppage involving all but ten maintenance men in the 176-man force of Electricians on Newbery-Neon Electric payroll occurred during the period October 1 through 6. The strike was the result of a dispute over contract matters. A return to work was accomplished on October 7 on a no-contract basis. Understandings reached with International Representatives at meetings in Washington on October 9, 10 and 11 returned negotiations to the local level. Agreement was reached in negotiations on October 17 and 18.

WAGE RATES

Reimbursement authorization was received from the Atomic Energy Commission covering a modification of our holiday pay policy for Community Firemen working under the Two-Platoon System. This reimbursement authorization provides that a Community Fireman who works on an observed holiday which falls on his regularly scheduled work day shall receive straight time pay for the hours worked, in addition to regular pay for the holiday.

1198011

Employee and Public Relations

The Atomic Energy Commission approved our request for a revision of our non-bargaining unit transfer rules regarding the assignment of rates in transfers to unrelated jobs involving upgrades or horizontal moves.

Joint applications and Supplemental Agreements from all Unions at the Hanford Works covering the proposed productivity and cost-of-living adjustments were forwarded to the New York Office. The BLS announced that the cost-of-living index of September 15, 1952 was 191.4. In line with this index, after Wage Stabilization Board approval of the Company's petition for a general increase amounting to 4.13 percent effective September 15, 1952, a total of 8.74 percent will have been added to the base rates of March 19, 1951.

Weekly meetings were held throughout the month with Pile Technology personnel, during which a plan was devised and placed in operation to make preliminary evaluations of technical jobs.

A reimbursement authorization request was submitted to the Atomic Energy Commission for the addition of a classification entitled "Secretary C". This classification, when approved, will result in all individuals now classified as "Steno and Typist A" being reclassified to the category of "Secretary C". This proposed revision is merely a title change and will not involve any change in rates.

In a series of meetings final revisions were made in the reimbursable items affecting nonexempt employees and Community Firemen of Appendix B of the proposed General Electric Company - Atomic Energy Commission contract, prior to its submission to the Atomic Energy Commission.

The Wage Rates Unit participated in wage rate surveys conducted by the California Research and Development Company and the National Lead Company of Ohio.

Four hundred and fifty (450) automatic and 6 merit increase were processed during October. Requisitions for 117 people were processed. Ninety-one (91) new hires and 26 reactivations were investigated concerning replacement, job, pay grade and qualifications. A review was made of 106 temporary reclassifications, 201 reclassifications and 143 transfers before approval was given.

1198012

PUBLIC RELATIONS

PUBLIC INFORMATION

A total of 97 releases were distributed during the month. Of these, 38 were sent to the "local" list, 18 to the media throughout the Northwest, 16 to hometown and college papers, and 28 received special distribution.

A story and pictures about the G.E. Pensioner's dinner, were sent to local media, as well as to hometown newspapers of those shown in the photographs.

A story concerning the Bio-Medical meeting held here at Hanford Works and photos were sent to the University of Chicago, University of California, University of Rochester, Tri-City Herald and Columbia Basin News.

Early in the month a chlorine line broke in 100-C Area. As a result, nearly 100 people were sent to Kadlec Hospital for physical checks and several were hospitalized. Public Relations cooperated with AEC Public Information people to service the press rapidly and accurately on this incident.

A refusal of bargaining unit members to work overtime unless they were paid for time spent eating lunches furnished by the Company resulted in the release of seven news stories to the local newspapers. At the time, important maintenance work was being held up and every effort was made to keep the local press informed of the latest developments. When the HAMTC agreed to arbitrate the problem, it was indicated by the unions business agent that the information program conducted had been an important factor in their decision to arbitrate the question, as provided for in the existing contract between the Company and the union.

A publicity writer attended a meeting of the Book Week Committee of the Richland Public Library and set-up a publicity schedule, arranged for pictures, and helped the members plan for Book Week Promotion.

The new library and files building and the Biophysics building in the Hanford Works Laboratory Area were toured and information gathered to be used in a story after the building is complete and turned over to G.E.

Miss Betty Gallegher, a representative of INVESTOR'S READER, published by Merrill, Lynch, Pierce, Fenner, and Beane, visited the News Bureau and received information on Richland for future use in that publication.

As a result of a discussion with Cecil Hannah, Manufacturing Department, the publication "Your Manufacturing Month" will contain an appeal to members of Manufacturing Department to prepare articles for release to trade magazines.

A feature story was sent to the MONOGRAM, at the request of the magazine's editor, giving a general description of Hanford Works, the manufacturing process here, and G.E.'s role on the project. This article was published in the November issue.

1198013

A feature story on the Richland air raid warning system, accompanied by photographs, was written and sent to the PACIFIC BUILDER AND ENGINEER magazine.

The Community NEWSLETTER for October was written and mailed to community leaders. Subjects discussed were the employee opinion survey, visit of 25 G-E inspectors to Hanford Works, and comparison of the increased cost of living with the increased price of G-E products during the past twelve years. Included, also, was a plea to register and vote.

The local high school student counselors were furnished two booklets concerning vocational guidance, with the assurance that the Company stands ready to help them conduct their vocational guidance program. Also, the assistant to the superintendent of schools, who is in charge of school public relations, was given a booklet titled "Schools Are What We Make Them" (a handbook for citizens). Presentation of these booklets afforded the opportunity to renew acquaintances at the beginning of the school year.

A total of five papers were presented for review and clearance this month. The following were presented during the month: "What Is the Atomic Energy Business", by Dr. W. I. Patnode, for presentation at the Washington State Convention of the Knights of Pythias and the Pythian Sisters at Vancouver, Washington, on October 7, 1952; "The Role of the Physicist in Treatment of Cancer" by H. M. Parker, for presentation at the British Columbia Cancer Institute Refresher Course on Malignant Diseases, Vancouver, British Columbia, October 10, 1952.

A booklet for the Speakers' Bureau, listing speakers and films available with a brief description of each film and biographical sketch of each speaker for clubs and organizations in the area, has been submitted to Special Programs Unit for a cost estimate for printing.

An address given by Dr. W. I. Patnode at the Engineering Societies Technical Meeting in Spokane on October 3 has been sent to MINES magazine along with a photograph and biographical sketch of Dr. Patnode. The editor of this magazine states that the information and the photograph will be used in a coming issue.

A card file on Hanford Works speakers has been set-up in the News Bureau, telling the title of the speech, when, where and by whom delivered, occasion, distribution given the story, and other factual information. This will reduce time spent on research by the News Bureau in the future.

Civil defense information and news stories were released during the month concerning the recent air raid test and a tie-in between civil defense and Fire Prevention Week.

The new Civil Defense air raid signal poster was completed. Approximately 150 copies were placed in the 700, 1100, and 3000 areas. Another 150 copies were made available for distribution within Richland.

Recruitment advertising was written and placed during the month for stenographers as follows: on October 26, 27 and 28 in the Dallas Times Herald, Arkansas Democrat, Arkansas Gazette, Oklahoma City, Tulsa World, Cedar Rapids Gazette, Des Moines Register, and Omaha World Herald; on October 27 and 28 in the Oklahoma City Times, Tulsa Tribune, Des Moines Tribune, Davenport Times, Ottumwa Courier and Moline Dispatch; on October 28 in the Davenport Democrat; and on October 26 in the Davenport Democrat and Times.

1198014

A total of 8,864 prints were produced during the month. Of the total prints produced, 6,208 were for employee identification and area admittance badges.

The number of photographic negatives exposed increased from 699 in September to 1,072 in October.

The production of 16mm motion pictures has become an additional major requirement of Photographic Services. A total of 4,700 feet of 16mm motion picture film were exposed this month.

The new employee photo identification unit was installed in a small trailer house and the kinks worked out of the new system in preparation for making new badge photos of plant employees. One employee from G.E. Security worked with Hanford Works Photographic Services for one week to learn how to operate this new equipment and how to process films.

The production of new identification photographs will begin upon the arrival of printing equipment in December, 1952, or January, 1953.

See attached Statistical Report

PROGRAM DEVELOPMENT

Twelve motion pictures were procured for group showings by other sections, including films produced by the General Electric Company.

Arrangements have been made for a two-week re-showing of International Nickel Company's "Corrison in Action" January 5-17, 1953. This film was requested for a return engagement by plant groups unable to see it during the first engagement.

The 23rd Hanford Works Science Forum program was broadcast over radio station KWIE during October. The Forum is now heard on Tuesday evenings at 9:30 p.m. The Forum relinquished the regular broadcast schedule for October 21 and 28 because of previous commitments on the part of the station for political advertising.

Preparation and arrangements for airing Community Chest publicity and "Follow Your Dollar Tour" were made. A half-hour broadcast of highlights and interviews made on the "Follow Your Dollar Tour" was aired on all four local radio stations during the week of October 19, 1952. A member of Radio and Special Events was commentator.

Two fifteen-minute interview programs were produced and recorded for the Public Health radio series, a regular weekly broadcast feature of a local radio station.

As a special service, this Section is cooperating with the Richland Public Library in preparing two fifteen-minute radio programs in celebration of National Book Week, and also in preparing spot announcements advertising special programs planned during the week November 16-22.

The sound equipment and sound truck were furnished and operated for the Supervisors' Association meeting at Camp Berlin and in the Fire Prevention Parade and demonstration held later in Riverside Park on October 4.

An elaborate arrangement for recording and simultaneous public address system was provided and operated as a service to the Company and AEC at the hearings held October 11, on the Richland Rent Plan.

The public address system was furnished to the meeting of the Bio-Medical Program Directors of the AEC, October 13-14, in addition to other visual aid material.

Complete recording and public address equipment was furnished for annual Pensioner's Dinner, October 9, at the Desert Inn. In addition, a member of the Section acted as master of ceremonies. Handlettered identification cards also were furnished.

Film footage for "No Comedy in Errors", a 16mm. black and white motion picture was completed and the work print reviewed by the working committee. Final narrative scripts for both "No Comedy in Errors" and "Operation...Sample", a 16mm sound motion picture being produced for Separations Section, Manufacturing Department, have been completed and submitted for final approval. Both motion pictures will be ready for showing by mid-December.

Initial conferences were held on the 16mm motion picture (documentary) to be

Fire Prevention, the October safety topic of the month, was given continuous publicity throughout the month. Activities of employees in all areas were highlighted with special emphasis given to individual training in fire prevention.

Special full page features were published on the following: a record class which completed P.M.S. training, the annual pensioner's dinner, instructions to residents on the method for charging for electricity, and the Suggestion System.

Off-site Inspectors visiting Hanford Works during the month agreed to submit from time to time news stories and/or photographs concerning their activities.

The Works NEWS "Realities" column has been revived.

The first of a series of full-page messages on the 9-Point Job Program was published in the Works NEWS issue of October 17. This will be followed with a full-page message each month until the entire program has been reviewed.

Assistance was given Union Relations in the recent dispute with the HAMTC. This involved preparation and production of three Employee News Letters and one letter to management over H. E. Callahan's signature; and the preparation and placement of a 5 column by 14" advertisement in both local daily newspapers.

Assistance to the current Community Chest Drive included a letter from H. E. Callahan to all Hanford Works exempt personnel reminding them that no Community Chest Drive will be held on the plant this year and preparation of a letter to be sent out by the Community Chest agencies to residents which pointed out this fact.

Another letter, also prepared for H. E. Callahan's signature, was distributed to all employees at their homes together with a copy of a leaflet describing the new benefits under the GE Insurance Plan.

A third letter prepared for H. E. Callahan's signature was distributed to all exempt employees with copies of the booklet, "A Creed for Free Enterprise."

The Health Bulletin for November, "Add Life to Your Years," was prepared and distributed to all employees. The Safety Topic for November, "Follow Through," also was prepared and distributed to all exempt employees. Art work included 7 illustrations, 2 layouts and lettering.

Booklets for distribution through the Information Rack Service--2,000 copies each of seven titles--have been received from the Good Reading Rack Service. Copies of the first four titles have been placed in each of the 20 information racks. Just prior to this distribution, a letter explaining the booklet information service was sent, together with copies of the booklets, to members of the General Manager's Advisory Committee. Two thousand copies of "Eight Great Americans" have been purchased through the New York Office and will be distributed through the racks.

Copy and art work for "Confidentially Yours" (manual for secretarial personnel dealing with the preparation and control of classified documents) was completed. Production of the booklet and cover will be completed within six to eight weeks. A letter was prepared and mailed to Hanford Works Management over C. G. Stevenson's signature, asking for requests for the manual from those who handle classified documents.

Promotion of the Nucleonics Good Neighbor Fund Board of Trustees Election consisted of: publicity for three issues of the Works NEWS; preparation of three sets of ballots and 10,000 return envelopes; and a letter to management signed by the election committee.

A certificate of appointment of staff members was prepared for Kadlec Hospital. One hundred copies were printed for distribution to members of the hospital medical staff at a monthly staff meeting.

Assistance to Employee Relations in presenting the dinner for retired employees included preparation and production of the program for the dinner, and writing the letter of invitation.

Art services provided to the Works NEWS during October included four editorial cartoons and layouts and pen sketches for three full-page messages covering three of the points under the 9-Point Job program.

1198018

ord Works Photo House
Month of October, 1952

	2" X 2"	2" X 4"	5" X 7"	3" X 10"	Neg.	3¼" X 4" SIDE	4" X 5"	11" X 14"	16MM	MOVIE	CHROME	CMEHOKRUTON AMTEED	ILMED
COMMUNITY REAL ESTATE & SERVICES													
Fire			46	96	93		290						
Parks & Recreation			4		4								
Police		24	21	2	78		43						
Community Services (Staff)				4	4								
EMPLOYMENT & PUBLIC RELATIONS DEPT.													
Employment	773			133	188								
News Bureau		12	192	72	103								
Special Programs		62		17	55								
Radio & Special Events				12	14				4,700'				1,400'
Training				15	14								
Works News		16	122	117	149		28	4					
Public Relations				10	8					8			
ENGINEERING DEPT.													
Plant Engineering Services				64	18								
Process					10	3	9						
Project Services				15	26								
Technical				12	3	2	510			28	6		
Rotational Training				4			20						
Pile Technology				5		19	17						
Applied Research				60							10		
MEDICAL			6	2	4	1							
MANUFACTURING													
Separations Section			10	105	26								
Proceedures & Reports				8	4								
RADIOLOGICAL SCIENCE DEPT.													
Survey						36				2	2		
Biophysices						26							
Biology						23							
UTILITIES & GENERAL SERVICES													
Security	4,924	511					11						
Proceedures & Analysis				9	3								

6109611

	2" X 2"	2" X 4"	5" X 7"	8" X 10"	Neg.	3¼" X 4" SLIDE	4" X 5"	11" X 14"	16MM MOVIE	CHROME	KEKTA ME	CHROMO UNMTED	FILM	DITED
MISCELLANEOUS														
AEC Safety			293	12	147		95							
AEC Security	54				18									
AEC Engineering				3	3									
TOTALS	5,751	625	694	767	1,072	138	1,023	4	4,700'	38	18		1,400'	

	August	September	October
Total Prints	6047	10,081	8,864
Total Negatives	560	699	1,072
Total Assignments	125	195	197

1196020

COMMUNITY REAL ESTATE AND
SERVICES DEPARTMENT
MONTHLY REPORT-OCTOBER, 1952

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Suffix	Beg. of Month	End of Mont
General Administration	310	7	7
Community Services Section			
Administration	320	5	5
Public Works	321	80	74
Engineering	326	9	9
Recreation & Civic Affairs	327	5½	5 3/4
Library	327	10½	10½
Fire	328	49	68
Police	329	41	51
	Sub-Total	200	223¼
Community Real Estate Section			
Administration	330	3	3
Housing Rental	331	26	25
Maintenance	333	143	146
Engineering	335	4	4
Commercial Property	337	12	12
	Sub-Total	108	190
700-1100-3000 Area Services Section			
Administration	340	2	2
Commercial Facilities (North Richland)	343	2	2
Maintenance	344	56	55
1131 Boiler Plant	346	2	4
	Sub-Total	110	63
Civil Defense Program	360	2	2
GRAND TOTALS		507	485¼

There was a decrease of twenty-one and three-quarters employees in the Department during the month of October, 1952. (The redistribution of fire and police personnel from the 700-1100-3000 Area Services Section to the Community Services Section was necessitated by the consolidation of these functions under the Community Services Section.)

GENERAL

The Richland and North Richland Fire and Police Units were consolidated, October 6, 1952, under the supervision of the Community Services Section.

1198021

The following commercial establishments opened for business during the month of October:

Kloster's Camera Shop	1348 Jadwin
Knuth School of Dance	239 Symons
Uptown Electric	1341 George Washington Way
Well's Radio and TV Company	708 George Washington Way

Total housing applications pending - 716.

HARoot/jak
11/11/52

CONTRACT SECTION

Contract No.	Contractor	Title and Status	Project No.
AT(45-1)-608	Associated Engineers, Inc.	Site Grading, Irrigation Landscaping, Construction of Rest Room, Sewer Lines, Water Lines and Shelterbelt. Contract completed October 20, 1952.	CG-425 C-408 L-262 K-562
AT(45-1)-619	Royal Company, Inc.	Elimination of Odors at Sewage Lift Station. Bid opening August 7, 1952, contract awarded August 4, 1952. Contract completed October 23, 1952.	L-608
AT(45-1)-635	L. H. Hoffman	Street Improvements, Parking Lots and Related Work. Contract approximately 67% complete.	CG-499 CG-486 L-911 L-662
AT(45-1)-651	--	Change Heating System at Bus Depot. Bid opening October 23, 1952. Low bid in the amount of $6,996.00 was rejected due to insufficient funds in the project.	L-939

1198023

COMMUNITY SERVICES SECTION

SUMMARY

OCTOBER, 1952

ORGANIZATION & PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
ENGINEERING	6	3	6	3
FIRE	49	0	68	0
LIBRARY	4	6½	4	6½
POLICE	16	25	18	33
PUBLIC WORKS	15	65	15	59
RECREATION & CIVIC AFFAIRS	3	2½	3	2 3/4
	93	102	114	104¼

The consolidation of the Richland and North Richland Fire Units and the Richland and North Richland Police Units was effective October 6, 1952. The change took place without incident and has been successful in operation since October 6.

1198024

COMMUNITY REAL ESTATE AND SERVICES
PUBLIC WORKS UNIT
October 31, 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Employees Beginning of Month	15	65
Transfers In	--	--
Transfers Out	--	7
New Employees	--	1
Terminations	--	--
Total - End of Month	15	59

SANITATION

Garbage and trash collections were continued according to schedule, and total weight of waste material collected and disposed of was 1224 tons.

ROADS AND STREETS

Approximately 700 cu. yds. of sand have been stock-piled for use in ice-control during the winter season.

The seasonal cleaning of storm sewer catch basins and drainage siphons was started at the beginning of October and is about 60 % complete at the end of the month.

Twelve steel catch basin grills were fabricated and installed as replacements for deteriorated wooden grills.

Routine seasonal maintenance of streets, street drainage systems, street signs and public sidewalks and parking lots was continued.

Construction work continued on Project CG 486, Improvement of Thayer Drive. Spreading of the leveling course was nearing completion at the end of October and paving is scheduled for the first week of November. Installation of catch basin grills and pouring of some isolated sections of curb and sidewalk has not been completed as yet.

GROUNDS MAINTENANCE

Irrigation and mowing of lawn grass areas were discontinued during the latter part of October and the collecting and storing of hoses,

1198025

GROUNDS MAINTENANCE (Continued)

sprinklers, and mowing equipment, is about 75% complete.

Burning of weed growth and general clean-up of open areas within Richland is in process, and the costs of this work are to be assessed to the groups having landlord responsibility for the areas involved.

Weed removal and soil discing in the shelterbelt areas, and tree pruneing in the Park areas were started in the latter part of October and are being continued.

DOMESTIC WATER

Normal operations and maintenance were continued. Average daily water consumption for October was 9.52 million gallons, and peak consumption occurred on October first, when 14.13 million gallons were used.

Installation of a 10" water main around building 713-A as replacement for the ruptured line located directly under 713-A, was completed, and the line was chlorinated and returned to service on 10-10-52.

The supply of irrigation canal water for the Richland Well Field percolation basin was shut down on 10-24-52, and a sufficient amount of water to maintain fish life in the basin will be provided by discharging one of the wells into the area.

Production and Consumption Recordings for October are as follows:

DOMESTIC WATER

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallons	Avg. Daily Consumption
Richland	116.6970	3.7644	200.7706	6.4765
North Richland	84.5410	2.7271	48.8982	1.5774
Columbia Field	94.2342	3.0398		
300 Area			45.4518	1.4662
TOTAL	295.4722	9.5313	295.1206	9.5201

SEWERAGE

Project L-608, "Elimination of Sewage Odors at Lift Station", was completed and accepted, and the facility was placed in operation on 10-23-52.

A total of 84 thousand gallons of sludge was pumped from the digestor to the drying beds at the Treatment Plant on 10-17 and 21-52.

Dried sludge was removed from 14 drying beds by the Morganic Fertilizer Company during October.

1190026

SEWERAGE (Continued)

Routine operation and maintenance of the collection system, lift station and treatment plant were continued, and average daily flow through the treatment plant was 3.356 million gallons.

Sewage flow records for October are as follow:

SEWAGE

	Total Sewage Flow Million Gallons	Average Daily Flow Million G. P. D.	Average Rate of Flow Gals. Per Minute
Plant No. 1	31.410	1.013	704
Plant No. 2	72.623	2.343	1627
TOTAL	104.033	3.356	2331

IRRIGATION SYSTEM

Operation of the Irrigation Pumphouses was discontinued on 10-20-52. Winterization of #2 and #3 distribution grids is complete and is in process on the remaining four grids.

The main canal to Richland was shut down at the Penstock on 10-24-52.

1198027

RECREATION AND CIVIC AFFAIRS UNIT

MONTHLY REPORT

OCTOBER, 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Beginning of Month	3	2-1/2
New Hires	0	1/4
Terminations	0	0
Transfers - IN	0	0
OUT	0	0
	3	2-3/4

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of October 31, 1952:-

Administration	7
Principals & Supervisors	14
Clerical	24
Teachers	285
Health Audiometer	1
Cooks	42
Nursery School & Extended Day Care	0
Bus Drivers	1
Maintenance	16
Operations	42
	432

CLUBS AND ORGANIZATIONS

As of October 31, 1952, the employees of the listed organizations, exclusive of those included in the Real Estate, Commercial and Other Properties Unit Report include:-

Youth Council - Chest	1
Boy Scouts	1
Camp Fire Girls	1
Hi Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	2
Chamber of Commerce	1
	11

On October 4, 1952, the General Electric Supervisors' Association sponsored a Roundup for their members at Burlin Camp with approximately 300 people attending.

1198028

On October 24, 1952, the Columbia High School Student Body Association sponsored a homecoming parade in Richland. Our unit made arrangements for a Police Escort during the parade.

The regular monthly meeting of the Parks and Recreation Board was held on October 9, 1952, in the Community House. The next meeting will be held on November 13, 1952.

The number and types of organizations presently served by the Recreation and Civic Affairs Unit include:-

Business and Professional Organizations		23
Churches and Church Organizations		27
Civic Organizations		19
Schools		13
Fraternal Organizations		25
Political Organizations		5
Recreation & Social Clubs -	Alumni	3
	Art, Music, Theater	10
	Bridge	3
	Dance	5
	Garden	3
	Hobby	10
	Social	11
	Sports	19
Veteran & Military Organizations		14
Welfare Groups		7
Youth - Boy Scouts		20
Girl Scouts		49
Camp Fire Girls		36
Miscellaneous		15
		317

RECREATION

The Fall Youth Activities Program co-sponsored by the Recreation and Civic Affairs Unit and the Richland Youth Council, a Community Chest Agency, was started at the weightlifting class held at Spalding School on October 6, 1952.

The Youth Archery Program will start at Columbia High School Girls' Gymnasium on Thursday, November 6 and will continue until January 1, 1953.

A basketball instructional and demonstrational clinic for elementary school youth will start in the schools on November 20. Two sessions will be held in each school.

The physical activity program for adults was started at Spalding School Gym during the month of October. Men's recreation on Monday evenings; Co-recreation, Tuesdays; and Badminton are held in the gym. Weightlifting, fencing, table tennis and shuffleboard are also carried on.

Below is an accumulated attendance record of the Athletic and Recreation Program being sponsored by the Unit:-

1198029

	Youth	Adult	Total
Sponsored Programs	118	416	534
Special Events	--	--	--
Permit Groups	105	175	280
Totals for Month	223	591	814
Fiscal Year Totals To Date	41,398	39,008	80,406

Indoor Attendance Total 814

Outdoor Attendance Total 79,592

COMMUNITY HOUSE

The Fall and Winter Youth Activities Program was started at the Community House during the first week of October. Co-sponsored by our Unit and the Richland Youth Council, arts and crafts, photography, elementary youth program, square dancing, dramatics, games room drop-in, weightlifting and archery are carried on weekly throughout the fall and winter months.

A Community Chest "Follow Your Chest Dollar Tour" was held at the Community House on Saturday, October 18, with displays set up in all the rooms and a tour explanation of activities given by a member of our Unit.

The Richland Hobby Fair, co-sponsored by the Recreation and Civic Affairs Unit and Paul's Incorporated, will be held at the Community House South Room on Saturday, November 29 between the hours of 12:00 Noon and 6:00 P.M.

The model train races will be held in conjunction with the Hobby Fair.

Below is a cumulative attendance record at the Community House for October, 1952:-

	Youth	Adult	Total
Sponsored Programs	5,951	1,432	7,383
Special Events	--	--	--
Permit Groups	368	1,697	2,065
Totals for Month	6,319	3,129	9,448
Fiscal Year Totals to Date	13,285	11,563	24,848

Indoor Attendance Total - 24,848

Outdoor Attendance Total - -----

1198030

RICHLAND PUBLIC LIBRARY

OCTOBER 1952

ORGANIZATION AND PERSONNEL	Exempt	Non-Exempt
Employees - Beginning of Month	4	6½
Transfers In	0	0
Transfers Out	0	0
New Hires	0	1
Terminations	0	1
End of Month	4	6½

GENERAL

Circulation

Books	14,599	(Adult - 8,871; Juvenile - 5,728)
Magazines	422	
Pamphlets	51	
Records	996	
Interlibrary Loans	27	
Grand Total	16,095	

Current Book Stock

Books added this month	281	(Adult - 243; Juvenile 38)
Books dropped this month	0	
Grand Total	21,472	
Phonograph Records added	20	

Registration

Adult	240	
Juvenile	35	
Total	275	
Total Registered Borrowers	11,414	
Children's Story Hour Attendance	338	(Pre-school - 204; Saturday Story Hour - bimonthly, 19; Special Halloween party and story hour - 115)

1190831

Throughout the month of October, the Library has been cooperating with civic organizations in supplying information regarding the forthcoming national and state elections. A pre-election reading list was compiled, listing books on the candidates and issues involved. This list, as well as pamphlets supplied by the League of Women Voters, was distributed to Library patrons.

The Library's American Heritage discussion group sponsored a panel discussion on the initiatives and referendums to be voted upon in the November election. Mr. Sam Farmer of the A.E.C's Legal Department acted as moderator and the members of the panel were: Mr. L. Joe Miller, Mr. J. V. LeClair, Mrs. W. I. Patnode, Mr. Robert Daniels, Mr. Don Davenport, and Miss Frances J. Ritz.

Plans for the celebration of National Book Week were initiated. The Library will have a Book Fair in the North Hall throughout the week, November 16-22. In connection with the celebration of Book Week, the Library is cooperating with local grade schools in the sponsorship of a book jacket design contest.

As part of its children's activities program, the Library gave a Hallowe'en party for grade school children. One hundred and fifteen children attended. Prizes for the party were donated by the Richland Rotary Club which is sponsoring the children's program for this year.

Twenty meetings were held in North Hall during the month.

RICHLAND POLICE DEPARTMENT

OCTOBER 1952

ORGANIZATION AND PERSONNEL	Exempt	Non-Exempt
Employees - Beginning of Month	16	25
Transfers In	3	9
Transfers Out	1	0
New Hires	0	0
Terminations	0	1
Total - End of Month	18	33

GENERAL

On October 6, responsibility for policing North Richland was assumed by the Richland Police Department. At this time, 12 members of the North Richland Patrol were transferred to the Richland Police Department; the remaining personnel being transferred to the Security Patrol of the Utilities and General Services Division. The actual increase in personnel over and above our regular enrollment is 10 people.

On October 8, a number of offices in our group were exchanged by supervisors to provide a more convenient access to facilities for which they are responsible.

The Police Department was reorganized on October 6 coinciding with the assignment of responsibility for policing North Richland. The new organization consolidated the Enforcement and Investigation groups under the management of Capt. J. S. Johnson and Capt. W. A. Ziegler, who will alternate their working schedule each month, working day and swing shifts. Another reassignment resulting from the reorganization was the placing of the Traffic Control Office and its functions under the Captain in charge of Administration and Traffic Control. Investigators were placed on a special shift arrangement to provide the most adequate coverage and yet permit them to report directly to a shift Commander on each shift. A fourth Sergeant was added as an investigator to complete the four shift arrangement, and one additional Sergeant was assigned as Court Appearance Officer, North Richland Field Sergeant and relief supervisor.

After a review of our automotive equipment needs, we are now releasing two sedans for reassignment.

A program to designate the most courteous driver each week was inaugurated on September 29, jointly sponsored by the Safety Council and this department. Only women were eligible during October for the free theater tickets which were awarded the winners.

The bicycle impoundment program got under way on September 29 and to date a total of 20 bicycles have been impounded. Other bicycles found to be operated in an improper manner totalled 8.

A Sheriff's sale of all abandoned vehicles held by this department was held October 31.

Two members of this department attended the F.B.I. sponsored Police Training School and three members attended the Fingerprint Identification course at Fort Lewis. This makes a total of 16 officers from this department who have graduated from this school.

Twenty-three prisoners were processed through the Richland Jail during this month, eight of which were from North Richland.

Twenty guns and 37 bicycles were registered during the month of October. A total of 339 police and traffic reports were processed through the records section of the Police Departmen consisting of reports originating from both Richland and North Richland.

1190033

Richland Police Department

TRAFFIC

There were 19 reportable accidents during the month of October as compared to 23 last month and 29 for the month of October in 1951. There have been a total of 221 accidents this year as compared to 198 for the same period last year. Ideal weather conditions and cooperation by the motorist may keep us under the 1951 total of 266.

There was only one injury accident for this month as compared to 3 last month and 4 during October of 1951. This decrease in injuries is encouraging as there have been only 36 persons injured in accidents this year as compared to 49 for the same period last year.

There was one injury pedestrian accident this month which is the first reported for the year, as compared to 5 reported for the same period last year. There were 6 persons injured in bicycle accidents during the first ten months last year and only two for the same period this year. We can well be proud of this record. There have been 20 bicycles impounded this month for operating after the hours of darkness with defective equipment.

Six of the above accidents occured in the business district, 10 were in the residential district, one was in a school district and 2 were on open roadways.

Property damage this month as a result of vehicle accidents was $3,764.00 or an average of $198.10 per accident. This average is lower than last month and a record low for Richland. The average for the month of October of 1951 was $273.72.

Members of the Richland Police Department investigated 10 of the above accidents and as a result Criminal Complaints were signed against 6 drivers for traffic violations.

Traffic violations which contributed to the above accidents were:

Following too close	5	Inattention to driving	1
Improper backing	4	Improper passing	1
Negligent driving	4	"J" walking	1
Fail. to yield right-of-way	2	Driving while intoxicated	1

It is not possible to explain why "Failure to yield right-of-way" which has been the major cause of accidents for many months, has dropped to 4th place this month with only two such violations.

With the reorganization of police functions, we assumed responsibility for the operation of the School Boy Patrol at John Ball School. They have 36 members in their group who have all been outfitted and given theater tickets which entitles them to a free show a month.

Construction was completed on the Downtown parking lot and it is being used quite extensively. Construction is also nearing completion on Thayer Drive and traffic control signs will be reinstalled the first part of November. It is expected that the surface will be completed by the middle of the month.

There were a total of 7 property damage accidents in North Richland this month, with no injuries.

1198034

Richland Police Department

TRAINING

Advance training for Richland Police members at the Small Arms Range for the period in Field Instruction was as follows:

Pistol - - - - - - - 1 hour

Total number of men reporting at the Range - - - - - - - 2
Total number of men instructed in Field - - - - - - - - 2
Total number of men fired over Army-L Course - - - - - - 2

Qualifications on the Army-L Course were as follows:

Expert - - - - - - - 2 100%

ACTIVITIES AND SERVICES	Richland			No.Richland
	August	September	October	October
Doors and windows found open in facilities	82	48	57	31
Children lost or found	21	26	27	3
Dogs, cats reported lost or found	33	28	23	7
Dog, cat, loose stock complaints	22	15	10	2
Persons injured by dogs	6	1	4	2
Bank escorts and details	0	0	0	4
Fires investigated	9	8	9	5
Miscellaneous escorts	14	6	5	5
Complaints investigated (no enf. action)	12	29	24	12
Deaths reported	1	0	0	0
Property lost or found	20	21	22	9
Records inquiries	95	98	92	0
Law enforcement agencies assisted	2	2	0	0
Private individuals assisted	40	17	20	4
Plant departments assisted	15	20	10	1
Emergency messages delivered	18	19	16	97
Street lights out reported to Electrical	91	89	85	2
Totals	481	427	404	184

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
(RICHLAND - NO. RICHLAND)
OCTOBER, 1952

ENSES	KNOWN		UNFOUNDED		CLEARED OTHER*		CLEARED ARREST	
	Rich.	North Rich.	Rich.	North Rich.	Rich.	North Rich.	Rich.	North Rich.
ART I								
1. Murder								
2. Rape								
3. Robbery	2							
4. Aggravated Assault								
5. Burglary-Break & Ent.	2	1					1	
6. Larceny - Over $50.00	4	2					1	1
7. Under $50.00	14	9				3	2	
Bicycle Theft	20	4			9	1		
7. Auto Theft	2	1			1	1	1	
OTAL PART I CASES	44	17			10	5	5	1
ART II								
8. Other Assaults	2						2	
9. Forgery & Counterfeit								
10. Embezzlement & Fraud	3						3	
11. Stolen Prop:Buy:Rec:Poss.								
1 Weapons:Carrying:Poss.								
1 Prostitution								
14. Sex Offenses								
15. Offenses Ag.Fam.&Child	2				1		1	
16. Narcotics-Drug Laws								
17. Liquor Laws								
18. Drunkenness	9	2			1		8	2
19. Disorderly Conduct								
20. Vagrancy								
21. Gambling								
22. Driving while Intox.	1	2					1	2
23. Violation Rd.&Dr. Laws:								
Speeding	34	6					34	6
Stop Sign	32	10					32	10
Reckless Driving	4						4	
Right of Way	5	1					5	1
Negligent Driving	21	5					21	5
Defective Equipment	6						6	
24. Parking	30	3					30	3
25. All Other Traffic Viol.	13	7			1		12	7
Carried forward to page Lf-5 Totals	162	36			3		159	36

1198036

OFFENSES	KNOWN		UNFOUNDED		CLEARED OTHER*		CLEARED ARREST	
	Rich.	North Rich.	Rich.	North Rich.	Rich.	North Rich.	Rich.	North Rich.
brought forward from page Lf-4	162	36			3		159	36
26. All Other Offenses:								
Malicious Mischief	2	1			2			
Vandalism	4	4			2			
Investigation		1				1		
Public Nuisance	2						2	
Prowler	1	1						
Car Prowl	2							
Ill. Shooting	2				2			
Disturbance	2	3			2	2		
Juv. Delinquent	1				1			
Obscene telephone calls	2							
27. Suspicion	1	1			1			
TOTAL PART II CASES	181	47			13	3	161	36
PART III								
28. Missing Persons	4	1			4	1		
Lost Persons	27	3			27	3		
Lost Animals	8	7			1	7		
29. Found Persons								
Found Animals	8				3			
Found Property		9						
TOTAL PART III CASES	47	20			35	11		
PART IV								
30. Fatal Mot. Veh.Traf.Acc.								
31. Pers.Inj.Mot.Veh.Traf.Acc.	1							
32. Prop.Dam.Mot.Veh.Acc.	18	7						
33. Other Traffic Acc.								
34. Public Accid	)							
35. Home Accidents	)	No Accurate Statistics Kept						
36. Occupational Accidents	)							
37. Firearms Accidents								
38. Dog Bites	2	2						
39. Suicides								
40. Suicide Attempts								
41. Sudden Death & Bodies Fd.								
42. Sick Cared For								
43. Mental Cases	1							
TOTAL PART IV CASES	22	9						
COMPOSITE TOTALS								
PART I, II, III, IV CASES	294	93			58	19	166	37

Cases listed under "Cleared Other" are those cleared by various means other than arrest, such as: or[illegible]s from prosecutor, juvenile probation officer or other situations in which a mutual agreement is obtained. They are definitely "cleared" cases and differ from the arrest column only in that there was no arrests.

Property reported stolen Richland - $3803.89 (including 20 bikes)
Property reported stolen No.Richland $1344.50 (including 4 bikes)
Property recovered Richland $2635.72 (including 9 bikes)
Property recovered No. Richland $ 492.00 (including 1 bike)

1198037

MONTHLY REPORT — RICHLAND POLICE DEPARTMENT — JUVENILES INVOLVED — OCTOBER 1952

OFFENSE	NO. CASES	JUVENILES	SEX	4	7	10	11	12	13	14	15	16	17	Total
RICHLAND														
Juvenile Delinquent	1	1	F									1		1
Vandalism	2	2	M	1	1									2
Breaking & Entering-Burg.	1	2	M			1			1					2
Ill. Shboting	1	3	M								2		1	3
Petit Larceny	3	7	M								4	1	2	7
Malicious Mischief	2	2	M						1	1				2
Investigation	1	1	M					1						1
TOTALS	11	18		1	1	1		1	2	1	6	2	3	18
NORTH RICHLAND														
Vandalism	1	2	M				2							2
Larceny(Petit)	1	2	M									2		2
TOTALS	2	4					2					2		4

1198038

RICHLAND POLICE DEPARTMENT
(Community of Richland)

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

Wash.Ore.& Calif. Six months (July - Dec.1951)		One month average	1951 July - Dec.	1952 Sept.	Oct
Murder	.4625	.0771	-	-	-
Robbery	10.425	1.737	-	-	2
Agg.Assault	5.775	.9625	-	-	-
Burglary	62.725	10.454	18	1	2
Larceny	207.200	34.533	139	19	18
Auto Theft	33.850	5.641	4	-	2
Bicycle Theft			102	42	20

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts.

State of Washington Six months (July - Dec.1951)		One month average	1951 July - Dec.	1952 Sept.	Oct.
Murder	.2475	.0412	-	-	-
Robbery	8.875	1.479	-	-	2
ssault	3.075	.5125	-	-	-
g lary	58.325	9.7208	18	1	2
Larceny	213.45	35.575	139	19	18
Auto Theft	32.45	5.408	4	-	2
Bicycle Theft			102	42	20

The percentage of offenses committed by persons under the age of 25 years is shown:

National Average Percentage of cases July - Dec., 1951		Richland JULY - DEC. 1951	Richland Sept.	Oct.
Robbery	52.9	-	-	-
Burglary	60.3	22%		50%
Larceny	43.9	6%	26%	17%
Auto Theft	68.4			

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the lower group because of the practice of some jurisdictions not to fingerprint youthful offenders.

1198039

RICHLAND POLICE DEPARTMENT
(Community of North Richland)

r of offenses known to police per 10,000 inhabitants in cities of 10,000 persons:

Wash. Ore.& Calif. Six months (July-Dec.1951)	One month average	No. Richland July - December 1951	No. Richland October 1952
Murder .185	.0308	-	-
Robbery 4.170	.695	-	-
Agg.Assault 2.31	.385	-	-
Burglary 25.09	4.181	1	1
Larceny 82.88	13.813	43	11
Auto Theft 13.54	2.256	5	1
Bicycle Theft		8	4

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts.

State of Washington Six months (July-Dec.1951)	One month average	No. Richland July - December 1951	No. Richland October 1952
Murder .099	.0165	-	-
Robbery 3.55	.581	-	-
Agg.Assault 1.23	.205	-	-
Burglary 23.33	3.888	1	1
Larceny 85.38	14.23	43	11
Auto Theft 12.98	2.163	5	1
Bicycle Theft		8	4

The percentage of offenses committed by persons under the age of 25 years is shown:

National Average Percentage of cases July - December 1951		No. Richland July - December 1951	No. Richland October 1952
Robbery	52.9	Figures for comparative	
Burglary	60.3	statistics not available	-
Larceny	43.9	at present time	9 %
Auto Theft	68.4		

Notes: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the loweregroup because of the practice of some jurisdictions not to fingerprint youthful offenders."

1198040

1-10861

RICHLAND P[illegible] DEPARTMENT
RICHLAND JUST[illegible]E COURT CASES
OCTOBER 1952

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES DISM.	WARR. ISS.	SENT JAIL	SENT SUSP.	LIC. REV.	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
DEFECTIVE EQUIPMENT	15	7	5	3						5	3	$ 8.50	$ 46.00	$ 37.50
DRIVERS LICENSES	29	15	11	1	1	1				6	19	3.50	53.50	35.00
DRVG WHILE LIC. SUSP.	1	1					1			1			52.50	
DRUNKEN DRIVING	3	3					1		2	1	1		127.50	
F.T.OBEY OFFICER	2		1	1							1	10.00		
F.T.S. & I.	1	1											15.00	
F.T.Y.R.O.W.	8	3	2	2	1					1		30.00	35.00	30.00
FOLLOWING TOO CLOSELY	1	1								1			10.00	10.00
HIT AND RUN	1				1					1				
ILLEGAL PARKING	35	7	16	12						4		57.50	24.50	10.50
ILLEGAL PASSING	1		1									7.50		
IMPROPER PLATES	8	3	2	2		1				5	5	5.00	3.50	
LENT DR. LIC. TO UNLIC. OPERATOR	1	1											10.00	10.00
NEGLIGENT DRIVING	30	13	9	6	1	1			2	7		227.50	184.50	25.00
NO REGISTRATION	3	1	1			1				2	2			
PERMITTED UNLIC. OPER. TO DRIVE MOTOR VEH.	1	1											3.50	
RECKLESS DRIVING	8		1	5	2				1			25.00		
SPEEDING	38	9	22	6		1				5	1	253.00	81.00	
STOP SIGN	38	9	26	2	1					4	1	158.50	60.50	13.50
THROWING & DROPPING GLASS FRM VEH.	1				1									
ABANDONMENT & NON-SUPPORT	1			1										
LARCENY BY CHECK	3	1		2			1							
PUBLIC INTOXICATION	9	4	5									62.50	57.50	
PETIT LARCENY	1	1											35.00	35.00
PUBLIC NUISANCE	2	2											10.00	
THIRD DEG. ASSAULT	1	1					1							
VAGRANCY	1		1									17.50		
TOTAL	243	84	103	43	8	5	5		5	43	33	$866.00	$809.50	$206.50

FOUR RECKLESS DRIVING CASES AMENDED TO NEGLIGENT DRIVING.

11-9-68

RICHLAND POLICE DEPARTMENT
NORTH RICHLAND JUSTICE COURT CASES
OCTOBER 1952

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES DISM.	WARR. ISS.	SENT JAIL	SENT SUSP.	LIC. REV.	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
DRIVERS LICENSE	7	2	3	1	1					1	4	$ 7.50	$ 15.00	$15.00
DRUNKEN DRIVING	2	2							2				105.00	
ILLEGAL PARKING	3		2			1						8.50		
ILLEGAL PASSING	1					1								
IMPROPER PLATES	1		1									7.50		
NEGLIGENT DRIVING	11	6	2	2	1				1			32.50	162.50	37.50
NO REGISTRATION	1			1							1			
SPEEDING	5	1	4									27.50	7.50	
STOP SIGN	9	2	6	1								30.00	10.00	
PUB. INTOXICATION	4	2	2									25.00	25.00	25.00
VAGRANCY	1			1										
TOTAL	45	15	20	6	2	2			3	1	5	$138.50	$325.00	$77.50

LF-10

ONE RECKLESS DRIVING CASE AMENDED TO NEGLIGENT DRIVING.
ONE DRUNKEN DRIVING CASE AMENDED TO NEGLIGENT DRIVING.

E408611

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
OCTOBER, 1952

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatilities		Major Injuries		Minor Injuries	
	Sept.	Oct.	Sept.	Oct.	Sept.	Oct.	Sept.	Oct.
Richland	23	19	0	0	1	0	2	1
North Richland		7		0		0		0

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Cases	
	Sept.	Oct.	Sept.	Oct.	Sept.	Oct.	Sept.	Oct.
Richland	6	4	7	2	0	1	10	12
North Richland		2		2		1		2

PLANT WARNING TRAFFIC TICKETS ISSUED:

Richland: NO WARNING TICKETS ISSUED FOR SEPTEMBER AND OCTOBER, 1952.

North Richland: FIVE WARNING TICKETS ISSUED IN OCTOBER, 1952.

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		Stop Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Drvg.		Parking V.		Other V.		Totals	
	Sept	Oct	Sept.	Oct	Sept	Oct	Sept.	Oct.	Sept.	Oct.	Sept	Oct.	Sept.	Oct.	Sept	Oct	Sept	Oct.
Richland	37	33	42	34	2	2	3	8	10	7	22	23	73	31	73	44	262	182
North Richland		5		9		3		1		0		9		3		9		39

TRAFFIC VOLUME: Average 24-Hour Traffic Volume Count for week ending October 28, 1952, Swift east of Stevens - 6,446 cars.

NOTE: TRAFFIC CONTROL STATISTICS SHOW ORIGINAL CHARGES ONLY.

LF-11

COMMUNITY SERVICES

RICHLAND FIRE DEPARTMENT

OCTOBER 1952

Organization and Personnel

	Exempt	Non Exempt
Employees - Beginning of Month	49	0
Transfers In	22*	0
Transfers Out	1	0
New Hires	0	0
Terminations	2	0
End of Month	68	0

* Employees of the 700-1100-3000 Area Services Fire Unit which became a part of the Richland Fire Department on October 6th.

Fire Protection

		Richland	North Richland
Fire Loss (Estimated):	Government	$ 0.00	$ 0.00
	Personal	71.00	35.00
	October Total	71.00	35.00
	Year To Date	$17,078.70	$5,881.27
Response To Fire Alarms		10	16
Investigation of Minor Fires and Incidents		26	3
Ambulance Responses		42	
Inside Schools or Drills		36	16
Outside Drills		16	19
Safety Meetings		8	2
Security Meetings		4	2
Fire Alarm Boxes Tested		186	124
Airport Standby		1	
Burning Permits Granted		16	

On October 6th the North Richland Fire Department became a part of the Richland Fire Department. Some shifts in assignments and ratings took place on the consolidation date.

On October 13th and 19th, Boy Scouts were examined at No. 1 Station for Firemanship Merit Badge.

Dry powder fire extinguishers were installed on Engines 1, 2, 3, 4 and both ambulances to replace carbon tetrachloride extinguishers.

Toward the end of October, firemen launched a voluntary program of repairing and refinishing Christmas toys for needy children.

During the last week in October, cleaning and other preliminary work was done preparatory to occupation of the new Central Fire Station

A member of the Richland Fire Department attended the Federal Civil Defense Fire School in San Francisco from October 26th to November 1st.

1198044

Fire Prevention

Eighty three fire inspections were made in October, resulting in four hazard reports. Fifty five fire extinguishers were inspected, 4 installed, 1 refilled and 5 removed.

All Fire Department personnel actively participated in observance of Fire Prevention Week, October 5-11, sponsored locally by the Greater Richland Chamber of Commerce. Principal campaign events included:

1. Distribution and posting of over 60,000 pieces of promotional material to homes, safety meetings, civic meetings, on billboards, on fire trucks and fire stations.

2. A lengthy fire prevention parade to kick off the campaign on October 4th. A large crowd lined the parade route to view numerous units included the U.S.Army and Columbia High School bands, mercantile and organization floats, marching units from veteran and youth organizations, mounted units, a flotilla of decorated bicycles, clowns, a comedy fire truck from the Selah Volunteer Fire Department, fire apparatus from the Richland, North Richland and Plant Fire Departments as well as several individual participants. At the conclusion of the parade, merchandise certificates totalling $50.00 in value were awarded to 18 winners of the bicycle slogan contest.

3. Following the awarding of parade prizes October 4th, the Richland, Plant and Selah Fire Departments participated in a public fire show north of Riverside Park.

4. Members of the Fire Prevention Week Speakers Bureau, members of the Fire Department and out-of-town speakers addressed school, civic club and safety meeting audiences on fire prevention.

5. The Fire Department conducted tours of the three fire stations for 549 students, 41 teachers, 53 Boy Scouts and 4 Scout leaders.

6. Two ladder truck and six engine company demonstrations were performed at Richland and North Richland schools.

7. Numerous activities were held in the schools including an essay contest sponsored by the Lions Club.

8. Window displays in mercantile establishments and the Richland Public Library accentuated the campaign as did guessing contests on the number of matches displayed in firemen's helmets.

1198045

9. The Fire Department arranged a simulated grave of a bed smoker at one of the prominent street intersections.

10. Complete photographic coverage was made of all Fire Prevention Week activities for campaign publicity and for use in the report book being prepared by the Fire Marshal for entry in two national contests.

The Assistant Fire Marshal attended a regular meeting of the Richland Traffic Committee, of which he is a member.

Assistance was given Minor Construction in planning manual and automatic fire alarm installation in the 706 Laboratory building.

The Fire Marshal, AEC Safety and Engineering officials inspected fire doors, fire walls and vertical openings in the Jason Lee Grade School. Except for two changes yet to be made, all recent modifications were found to be satisfactory.

Inspection by the Fire Marshal's staff and Real Estate Maintenance supervision of several residential furnaces converted to oil by commercial firms revealed that the installations do not conform to local or national codes. A subsequent meeting with commercial installers resulted in an agreement on a new set of specifications prepared by Real Estate.

The Fire Marshal's staff attended a fire drill at Kadlec Hospital and a subsequent meeting with hospital wardens.

1198046

COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT
ENGINEERING UNIT

OCTOBER 1952

PERSONNEL

	Exempt	Non-Exempt	Total
Employees - Beginning of Month	6	3	9
Employees - End of Month	6	3	9

The Status of Active Projects is as Follows:

S-608 - Odors Emanating from Sewage Lift Station - 100% complete. Final inspection made on October 23, 1952, and accepted.

L-662 - Mansfield Street Improvement - 38% complete.

C-486 - 1952 Street Improvement Program - 55% complete.

C-488 - Additional Erosions Control and Development, Public Areas, F.Y. 1952 - Design in progress.

C-499 - Alteration of Greenway for Parking Area - 100% complete.

Status of Active ESRs:

)6-CA - Site Map CAP Field - Deferred for other work.

510-M - Roads and Streets Drawings, 1950 Construction - Deferred for other work.

544-SD - Tree Planting for Schools - No request for additional work as of this date.

547-MD - Fixed Irrigation System - Project discontinued. ESR closed.

565-RC - Site South of Tract House 0-1224 - Deferred for other work.

570-M - All Saints Episcopal Church - Work progressing. 95% complete.

571-M - Free Methodist Church - Work progressing. 85% complete.

572-M - First Baptist Church - Work progressing slowly. 63% complete.

574-M - Assembly of God Church - Work progressing slowly. 32% complete.

579-M - Goethals Drive to Williams, Study of Intersection - Deferred for other work.

581-RC - "As Built" Plans for LDS Church - Plans received. In process of checking.

588-M - Alteration Permits - An open active file.

[illegible]1-M - Preparation of Advise Pamphlet for Contractors - Deferred for other work.

612-RC - "As Built" Plans for Richland Thrifty Drug - Returned to architect for correction.

615-M - Plan Checking, McVicker Building #4 - 100% complete. Final inspection made.

1198047

Engineering Unit

616-M - Level Control Valve, Sewage Treatment Plant - Deferred for other work.

624-M - Landscaping Estimate for Central Fire Station - 100% complete. ESR closed.

628-M - Prepare "As Built" Plans for Richland Fire System - Given to Engineering Department for completion with other work.

630-M - Correction of Master Plan - To be accomplished as time permits.

631-M - "As Built" plans for Sewer System - To be developed as time permits.

633-M - "As Built" plans for Streets - To be developed as time permits.

634-M - Engineer Liaison, Richland Water Expansion - Preparing and submitting data as requested. Following construction by periodic inspections. Work progressing.

646-M - Engineer Liaison, Central Fire Station - Completed and accepted by the Using Department. ESR closed.

651-M - Estimate for Dog Pound - 100% complete. ESR closed.

656-M - Plan Checking, Kidwell-Gerdes Service Station - Awaiting receipt of plans.

657-M - Review Richland Fire Station - To be developed as time permits.

663-M - Richland Development Co., Block 5, North Commercial Area, Plan Checking - Work progressing. 70% complete.

5-RC - Rich and Labor Temple, Site for Labor Hall - Plans received for checking.

669-M - Alterations for Frank Berry Sporting Goods Store - 100% complete. ESR closed.

674-RC - Uptown Parking Lot Study - Deferred for other work.

676-M - Sidewalks, Aprons, and Drives in Vicinity of Swimming Pool and Bathouse - In project proposal stage.

677-M - Addition to Ernie's Restaurant, Dine and Dance - Work progressing. 95% complete.

682-M - Alterations to Joseph-Cannon Building - "As Built" plans received for checking.

686-RC - Utility Lines, Vacant Commercial Sites - An open active file.

689-RC - "As Builts" CD Joseph Building #2 - Plans checked except plumbing plans, which have not been received.

693-M - Tracings up to Date, Richland Water and Sewer Systems - To be developed as time permits.

694-M - Plans, Specifications, and Inspections, John L. Miller Building - Construction - 95% complete.

697-M - Plans, Specifications, and Inspections, Drive-In Theater - Awaiting submission of plans.

698-M - Plans, Specifications, and Inspections, Rug Cleaning Plant - Plans checked and accepted.

1198048

Engineering Unit

'09-M - Plans, Specifications, and Inspections, Tastee Freez - Construction progressing. 95% complete.

700-RC - Legal Description, Grace Bacon Site - 100% complete.

701-RC - Legal Description, Geo. Wash. Way to Dike between Newton Street and Desert In Service Drive - 100% complete.

705-RC - Field Supervision, Parking Lots, Chief Joseph Jr. High School - Project 20% complete.

706-RC - Plans, Specifications, and Inspections, Medical-Dental Properties, Inc. - Construction progressing. 30% complete.

707-RC - Study, Baptist Church, Richland Heights - 100% complete.

708-M - Route Survey for Telephone Underground Multiple Duct System - 100% complete.

709-RC - Legal Description, Stevens Drive between Grace Bacon and Parker Hanson Sites - 100% complete.

710-RC - Remaining Frontage on Stevens Drive, Anderson Motors - 50% complete.

711-MPW - Study and Estimate, Sewer Main, Swift Boulevard - Work progressing.

'2-M - Survey of Richland Washington, Liaison and Assistance - Work progressing.

714-RC - John L. Miller Site, Tap 4" water main and install valve - 100% complete.

715-M - Television Antennae - An open active file.

716-M - Plans, Specifications, and Inspections, Johnny's Minute Man Service, Building #2 - Plans submitted.

717-RC - Legal Description, Proposed Site, CD Joseph, Blk. 5, Uptown Area (Richland Realty Co., Bldg. #1) - 75% complete.

718-M - Plan Checking, Maintenance Building, School District - Plans submitted, checked, and approved.

719-M - Field Engineering, Landscaping, Central Fire Station - 100% complete.

720-RC - "As Builts", West Side United Protestant Church - Being reviewed.

721-RC - Tap Water & Sewer Lines, Tastee Freez (Parker Hanson) - 100% complete.

722-M - Erosion Control & Development of Public Areas, F.Y. 1953 (Project) - Rough draft of project submitted 10-15-52.

723-RC - Legal Description, Richland Realty Co. NW Corner, Blk. 5, Uptown Area - 75% complete.

,24-M - Preliminary Engineering - Hospital Grounds Improvements - No started.

COMMUNITY REAL ESTATE SECTION

SUMMARY

OCTOBER
1 9 5 2

ORGANIZATION AND PERSONNEL:

	Beginning of Month		End of Month	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial Property Unit				
337	7	5	7	5
Housing & Maintenance Unit				
331	5	21	5	20
333	13	130	13	133
335	2	2	2	2
Community Real Estate Section				
330	2	1	2	1
	29	159	29	161

Increase in Employees for month of October 2

GENERAL

The following establishments opened for business during the month of October, as sub-lessees in the following buildings:

Automatic Laundry Co. Building-Block #5
Knuth School of Dance — 239 Symons.

Davis Furniture Building-Block #3
Uptown Electric — 1341 George Washington Way.

Frank Berry's Sporting Goods Store
Kloster's Camera Shop — 1348 Jadwin.

John L. Miller Building
Well's Radio and TV Company — 708 George Washington Way.

Arbitration of the Richland Fuel and Lumber Co., Rental Renegotiation Dispute was consummated during the month of October.

HOUSING AND MAINTENANCE UNIT

October, 1952

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month:	20 Exempt	
	153 Non-Exempt	
	173	173
End of Month:	20 Exempt	
	155 Non-Exempt	
	175	175

1198051

RICHLAND HOUSING

ING UTILIZATION AS OF MONTH ENDING OCTOBER 31, 1952

ES OCCUPIED BY FAMILY GROUPS

	Conventional	A&J	T	Precut	Ranch	Prefab	Apt Dorm	A&J Apts	2 Br Apts	Fourth Housing	Tract	Total
G.E.Employees	2211	258	9	379	814	1168	10	46	61	197	35	5188
Commercial Facilities	96	13	1	37	82	57		7	3	8	5	309
Community Activities	9				7	5					1	22
Medical Facilities	3	17			2	1			1	3		27
Post Office	5				3	12				1	3	24
AEC	89	26		20	57	19		4	2	16	3	236
Other Goverment	7	2			4	3			1		1	18
Schools	52	1		6	10	56		1	1	1		128
Atkinson Jones	5	11		1	6	3		4				30
Charles T. Main	1			3	4	10				1		19
Vitro Corporation	5	2		2	3	2						14
P.S.Lord	3				2					2		7
Newberry Neon	2	1		1				1		1		6
Vernita Orchards											5	5
Urban-Smythe-Warren					2				1			3
Universal Foods						3						3
Kaiser Engineers	3	1		1	2							7
V.S.Jenkins					1							1
Total	2491	332	10	450	999	1339	10	63	70	230	53	6047
Leases written	5					1						6
Houses assigned as not written	2	1			1	2		1				
houses available for assignment	2											2
Total	2500	333	10	450	1000	1342	10	64	70	230	53	6062

	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2496	32	37	2491	Minus 5
A&J Type	332	4	4	332	
"T" Type	10	1	1	10	
Precut House	449	5	4	450	Plus 1
Ranch Type	999	13	13	999	
Prefab	1327	31	19	1339	Plus 12
Dorm Apt Type	10			10	
A&J Apts	63	3	3	63	
2BR Apts	69	2	1	70	Plus 1
Fourth Housing	230	4	4	230	
Tract	54	1	2	53	Minus 1
Total	6039	96	88	6047	Plus 8

1198052

DORMITORY STATISTICS

Dormitories:

	Occupants	Vacancies	Total Beds
Men Occupied	616	11**	605
Women Occupied	481	20	461*
	1097	31**	1066*

Women's Dormitories occupied by:

G.E. Office 2
Education 1
Apartments 1

*This includes space of 2 beds in W-9 used for supply rooms and dormitory offices.
** 11 Beds are being held for Architect Engineering Firm Design Section.

There are 71 Men waiting for rooms in Richland
There are 0 Women waiting for rooms in Richland
There are 32 Men waiting for single rooms
There are 59 Women waiting for single rooms

GENERAL

ALLOCATION SECTION STATISTICS

Houses Allocated to new tenants	61
Exchanged Houses	18
Moves (Within the Village)	22
Turnovers	--
Total leases signed	101
Total Cancellations	88
Houses Assigned "As Is"	46
Houses sent to Renovation	23
Applications pending	716

STRAIGHT CANCELLATIONS

Voluntary Terminations	18
R. O. F.	5
Discharge	1
Transfers	9
Retirement-Divorce-Misc.	8
Move off Project	8
Deaths	1
Total straight Cancellations	50

1198053

TENANT RELATIONS WORK ORDER AND PROGRESS REPORT MONTH OF OCTOBER, 1952

Processing of Service Orders, Work Orders and Service Charges

	Orders Incomplete as of September 31, 1952	Orders Issued 9-31 to 10-31	Total orders Incomplete as of October 31, 1952
Service Orders	304	1868	260
Work Orders	381	641	449
Service Charges		294	

Principal Work Order Loads

	Incomplete as of September 31, 1952	Incomplete as of October 31, 1952
Laundry tub replacement	42	37
Bathroom Reno's (tub, tile, lino.)	43	45
Tileboard Only (bathroom)	0	0
Kitchen cabinet lino.	51	39
Kitchen floor lino.	13	12
Shower Stall	14	25

Alteration permits issued during the month of October totaled 111 compared to 104 issued in September.

Convert to oil	2	Remove chest of drawers	1
Install 110V outlets	3	Install air conditioner	1
Remove laundry trays	3	Install fence	8
Install clothes dryer	18	Remove shelves	1
Install auto. washer	17	Install driveway	6
Convert furnace to gas	3	Install clothes poles	2
Construct greenhouse	1	Install built-in heater	2
Move hot water heater	1	Construct storage shed	3
Basement excavations	1	Install ventilating fan	2
Install water softener	3	Install laundry chute	1
Glaze porch	1	Raise door threshold	1
Install auto. stoker	4	Install basement partitions	2
Move range receptacle	1	Install patio	1

1702 Inspections were made during the month of October compared to 1336 made during September.

Bathtubs		Shades	18
Cupboards		Shower stalls	35
Drainage	1	Sidewalks	19
Floor boards	18	Sinks	30
Grass seed	5	Tileboard	31
Jack & Shim	9	Toilet seats	30
Leaking basements	10	Topsoil	19
Linoleum	190	Renovation	98
Paint	193	Cancellations	88
Porch&steps	75	Shows (new tenants)	76
Screen doors	1	Miscellaneous	679
Windows	26		

1198054

REAL ESTATE MAINTENANCE

I. REAL ESTATE MAINTENANCE BACKLOG REPORT

JOB TITLE	OLDEST ISSUE DATE	BACKLOG	MONTH'S COMP. JOBS	FISCAL YEAR COMPLETIONS
Bathtubs	7/25/52	44	37	113
Kitchen floor tile	4/17/52	15	30	152
Bathroom tile	5/21/52	3	6	12
Kitchen sink top	7/16/52	54	53	171
Prefab floor linoleum	10/17/52	3	36	139
Shower stalls	3/19/52	27	68	115
Laundry tubs	6/11/52	48	10	58
Major sewer stoppages	8/6/52	4	17	93
Replace oil tanks	6/6/52	1	0	0
Roof coating	6/10/52	64	4	4
Ranch Hse. H. water lines	9/22/52	1	0	0
Remove trees	8/18/52	41	8	28
Renovation	10/24/52	1	32	88
Water heaters	7/25/52	9	13	52
Rebuild porches	6/13/52	36	50	123
Asphalt service walks	6/24/52	6	13	33
Asphalt steps	7/15/52	18	47	86

1198055

II. MAINTENANCE TRANSPORTATION EQUIPMENT

TRUCK TYPE		NO. IN POSSESSION	CRAFT
1/2 ton Pickups		3	Painters
1/2 ton Panels		2	Painters
3/4 ton Panel		1	Painters
1½ ton Flatbeds		3	Painters
1/2 ton Pickups		7	Carpenters
1½ ton Flatbeds		6	Carpenters
1/2 ton Pickup		1	Sheetmetal
1/2 ton Panel		1	Sheetmetal
3/4 ton Panels		2	Millwrights
3/4 ton Walkin		1	Millwrights
1/2 ton Pickups		6	Plumbers
3/4 ton Pickups		3	Plumbers
	Subtotal:	36	
SERVICE ORDERS:			
1/2 ton Pickups		3	Plumbers
3/4 ton Pickup		1	Plumbers
1/2 ton Pickups		5	Electricians
1/2 ton Pickups		2	Carpenters
1/2 ton Pickup		1	Lock & Key
1/2 ton Pickup		1	Glazing
	Subtotal:	13	
RENOVATION & LABOR:			
1/2 ton Pickup		1	Renovation
1½ ton Panel		1	Renovation
1½ ton Flatbed		1	Renovation
Chev. CarryAll		1	Renovation & Labor
3½ ton Dumps		2	Labor
	Subtotal:	6	
GENERAL:			
Sedans		2	Supervision
	Subtotal	2	
	GRAND TOTAL:	57	

1198056

FISCAL YEAR, 1953
INTERIOR REDECORATING PROGRAM
MONTHLY REPORT

Sept. 29 thru Oct. 31, 1952

TYPE UNIT	*NO. UNITS SCHEDULED	COMPLETED THIS MONTH	COMPLETED TO DATE	BALANCE TO BE PAINTED
A	201	6	12	189
B	359	7	11	348
D	4	0	0	4
E	32	5	5	27
F	103	4	6	97
G	3	0	0	3
H	73	1	1	72
L	2	1	1	1
M	16	0	5	11
Q	110	9	32	78
R	124	12	31	93
S	12	0	9	3
T	6	0	0	6
U	17	0	11	6
V	101	5	86	15
Y	771	0	1	770
Z	42	0	0	42
1 BR.	5	0	0	5
2 BR.	8	3	4	4
3 BR.	4	0	1	3
Tract	7	0	0	7
1 BR. Apt.	35	2	32	3
2 BR. Apt.	0	0	0	0
TOTAL:	2035	55	248	1787

*This includes all housing units which have not been redecorated in four (4) years. There are only 1376 units actually budgeted to be redecorated this Fiscal Year.

1198057

EXTERIOR PAINTING PROGRAM

The exterior painting of 333 A & J housing units was completed on schedule, October 27, 1952. These units were repainted with one coat of controlled penetration primer and one coat lead and oil paint. This represents the first major use of lead and oil paint in the city and it will be interesting to observe the results.

Six (6) B. O. Q. Dorms were scraped and one coat of controlled penetration primer was applied.

Two ranch house units, located at 2006 and 2008 Torbett, were chosen for experimental exterior painting purposes. These units were painted with "Shake paint" for the purpose of establishing the possibility of one-coat coverage.

GENERAL PLUMBING

The plumbing group completed the following units of work during the month of October.

Replaced bathtubs:	28	Replaced water heaters:	13
Replaced laundry tubs:	17	Replaced shower stalls:	46

1. Completed 28 plumbing Work Orders consisting of replacing broken water lines, sewer lines, broken plumbing fixtures, etc.
2. Cleaned 25 sewer laterals clogged with tree roots.
3. Completed 61 linoleum orders consisting of removing and replacing sink faucets, removing and replacing toilet bowls, so new sink linoleum and bathroom floor tile could be replaced.
4. Completed 12 steam Work Orders consisting of repairing radiator valves, traps, and replacing rusted out piping.
5. Turned off all domestic irrigation water in town.
6. Are now repairing National water heaters in 722 Hangar.
7. Group is now inserting copper sulphate in sanitary sewer lines to kill tree roots.
8. This group is winterizing air conditioners and sill cocks in Dorms, Apartments and Commercial Buildings.
9. Steam inspections were made once a week on Commercial buildings, Dorms and Apartment buildings.

SHEETMETAL.

This group (3 men) made and installed the following items in the past month.

1. 46 shower stalls in 2 and 3 BR Prefabs.
2. 8 shower stalls in W-3.
3. 22 sets of gutters for houses.
4. 15 smoke pipes.

MILLWRIGHT

This group (4 men) has been on routine furnace inspection and repair, and doing work for Service Orders during the month of October.

CARPENTRY & LINOLEUM

The following units of work were completed by this group during the month of October.

1.	Installed plastic tile in bathrooms:	37
2.	Replaced linoleum in bathrooms:	37
3.	Repaired or replaced sink linoleum:	65
4.	Replaced kitchen sinks:	20
5.	Replaced floor linoleum:	25
6.	Replaced linoleum in utility room - "T" house:	1
7.	Replaced work bench linoleum:	5
8.	Installed linoleum on Dorm steps - M-14:	1
9.	Repaired and replaced sash balances:	7
10.	Repaired porches and steps:	40
11.	Applied roof coating:	22
12.	Jack and Shim work:	9
13.	Raised rear slabs:	6
14.	Repaired roofs:	18
15.	Replaced cupboard doors:	2
16.	Repaired outside walls:	2
17.	Drilled weep holes in Prefab windows:	2
18.	Installed metal edging in doorways:	6
19.	Replaced and renailed shakes:	4
x 20.	Chempoint jobs:	161

CARPENTER SHOP

The craftsmen in the Carpenter and Spray shop completed the following units of work during the month of October:

1.	Repaired and painted screen doors:	15	
2.	Repaired and painted window screens:	36	
3.	Repaired and painted window sashes:	6	
4.	Repaired and painted exterior doors:	15	
5.	Installed street step forms:	31	
6.	Made cabinets for service trucks:	73	hours
7.	Repaired roofs: (one coat)	32	
8.	Made "Mockups" for Design:	35	hours
9.	Made items for inventory stock:	67	hours
10.	Made painters work benches:	46	hours
11.	Painted for R. Vaught: (Spray shop)	77	hours
12.	Repaired and painted cabinet drawers:	19	
13.	Made and painted cabinet doors:	15	
14.	Painted shower stall panels:	21	hours
15.	Made counters for Housing office:	18	hours
16.	Painted kitchen after fire:	12	hours
17.	Paint touch-ups after porch repair, etc:	68	

1198859

SERVICE ORDERS

The following is a status report on Service Orders:

A.	On hand at the beginning of the month:	304
B.	Received during the month:	1807
C.	Completed during the month:	1851
D.	On hand at the end of the month:	260

NOTE: There are approximately 15 electrical inspections yet to be made in Division I which will make it about 50% complete. This work will be discontinued during the next four months due to the heavy influx of Service calls during the winter months.

E. A total of 497.1 man hours were spent on Work Orders.
F. The work of installing glass in all the Hauserman partitions of the new wing of the 703 building is being done by our Glazier who is following directly behind the carpenters of the General Services division.

RENOVATION AND LABOR

During the month of October, thirty-one (31) renovation orders were processed, the work consisting of, for the most part, cleaning and miscellaneous repair. Also, 55 units of housing had minor carpenter repairs.

The labor group completed the following units of work during the month of October:

1.	Cleaned fire damage:	1
2.	700 AREA laboratory fire damage:	1
3.	Disinfected basements:	2
4.	Sealed concrete floor of M-13:	1
5.	Sprayed for raoches:	2
6.	Installed drain tubes in Prefab windows:	6
7.	Recovered ironing boards with asbestos pads & covers: (M-13)	3
8.	Filled steps with blacktop:	25
9.	Moved paint shed from Williams & Perkins to 700 AREA:	1
10.	Dug and backfilled for sewers and oil tanks:	23
11.	Filled and seeded after back-hole:	5
12.	Filled around foundations:	6
13.	Installed walk around "Move List" sign at Housing:	1
14.	Spiked bumper logs at Thrifty and C. C. Anderson Parking lots:	2
15.	Installed steps and walks at "M" Dorms:	4
16.	Removed trees and repaired yards:	12
17.	Hauled excess:	4
18.	Hauled and disposed of oil from all filling stations:	2
19.	Completed Divisions IV and V compound drives:	
20.	Started on Renovation painting of M-13 on 10/27/52.	

REAL ESTATE ENGINEERING UNIT

October, 1952

Following is the status of active Projects being handled by this Unit:

L-911 Resurface Parking Lot Between Campbell's Food Store & Village Pharmacy

Field work 96% complete.

L-939 Change Heating System in Bus Depot

Project cancelled due to lack of funds.

C-930 Concrete Service Walks and Steps - 552 Houses

Held up pending further developments.

Following is the status of active ESR's being handled by this Unit:

903-RH Alteration Inspections

Routine work.

904-RM Procurement Aid and Material Studies

Completed.

910-RC Approval of Pasture Land Permits

Routine work.

917-RH Drainage of Inner Block Areas

No activity.

919-RC Approval of Alterations - Desert Inn Hotel

Shower stalls to be completed early in November.

933-RC Alterations to Building 1116.

Closed.

938-RH Study of Oil Heat in Prefab Houses

Study in progress.

941-RH Study of TV Antennas for Richland Houses

Study completed and recommendation made.

1198061

REAL ESTATE ENGINEERING UNIT October, 1952

942-RH Richland Housing Map Revisions

Map tracings being revised to make corrections and add new housing additions.

1198062

COMMERCIAL PROPERTY - REAL ESTATE SECTION

October, 1952

PERSONNEL - COMMERCIAL PROPERTY:

	October
Beginning of month	12
End of month	12
Net difference	0

PERSONNEL - COMMERCIAL AND NONCOMMERCIAL FACILITIES:

	Commercial	Noncommercial	Total
September	1,453	114	1,567
October	1,400	115	1,515
Net difference	53	1	52

SUMMARY OR ROUTINE ITEMS PROCESSED:

Work orders	37	19
Back Charges	2	1

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Leases:

a. Bauer-Day, Inc.---lease of construction buildings, with an option of purchase, located on land leased by the Bauer-Day, Inc., known as the M-1 Housing Area.

b. Ralph Wheeler--covering maintenance and operation of a tavern, purchased by Lessee from Hugh S. Cannon and Chalmer D. Joseph, Block 4, Uptown Business District.

c. F. R. Rice--covering the construction, operation and maintenance of a rug cleaning service and used furniture store to be located north of New City Cleaners, on Stevens Drive, Light Industrial Area.

d. Edward B. Payne, M. D.--covering the month-to-month lease of space in the Medical-Dental Building.

2. Supplemental Agreements:

1198063

a. Automatic Laundry Co.--Agreement No. III cancels Agreement No. I, which provided for the addition of the Uptown Tavern, in conjunction with the sale of the tavern to Ralph Wheeler.

b. Virgil O. McVicker--Agreement No. II provides for the construction of a 12' x 32' addition for dry storage space in the building located at 1315 George Washington Way.

c. Virgil O. McVicker--Agreement No. III provides for the construction of a 24' x 42' addition to be used as space for expansion of the restaurant and cocktail lounge in the building located at 1315 George Washington Way.

3. Letters of Approval:

a. Donald M. Lone--to permit Lessee to sublease the Starlite Roller Rink premises to Ernie Jarrard Motors for the operation of a Used Car Dealership.

B. Noncommercial:

1. Lease:

a. U. S. Veterans Administration--covering the continued use and occupancy of tract 150-x, located at 329 Cullum Avenue, for a term of one year, commencing July 1, 1952.

2. Contract for Electrical Service:

a. U. S. Veterans Administration--covering the use of electrical energy during the lease term ending June 30, 1953.

3. Letter of Authorization:

a. Richland Post No.-71, The American Legion--to enter into a ground lease with General Electric Company for the construction, operation and maintenance of a Legion Hall at George Washington Way and Newton Street.

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

A. Commercial	September	October
1. Number of Government-owned buildings	37	37
a. Number of businesses operated by prime lessees	41	41
b. Number of businesses operated by sublessees	17	17
c. Total businesses operating in Government-owned buildings.	58	58
2. Doctors and dentists in private practice, leasing space in Government-owned buildings.	22	22
3. Number of privately-owned buildings	46	47
a. Number of businesses operated by prime lessees	38	39
b. Number of businesses operated by sublessees	53	55
c. Total businesses operating in privately-owned		

HW 9006-11

	September	October
4. Privately-owned buildings under construction	5	6
5. Total number of businesses in operation	149	152
B. Noncommercial:		
1. Government-owned buildings		
a. Churches	4	4
b. Clubs and organizations	9	9
c. Government agencies	3	3
Total	16	16
2. Privately-owned buildings		
a. Completed and in use	7	8
b. Under construction	6	5
3. Sites tentatively allocated or leases in process of negotiation.	2	2
Total	15	15
4. Pasture Land Permits	78	79

GENERAL:

A. Commercial:

1. Knuth School of Dance, 239 Symons, opened for business, October 1, in the Automatic Laundry Co. building, Block 5, Uptown Business District.

2. Uptown Electric opened for business, October 1, in the basement of Davis Furniture Bldg., Block 3, Uptown Business District.

3. Chester V. Adams terminated his sublease with Spencer-Kirkpatrick, October 6, 1952.

4. Kloster's Camera Shop opened for business, October 10, in Frank Berry's Sporting Goods Store, Uptown Richland.

5. Well's Radio and TV Company opened for business on October 25, in the John L. Miller, Bldg., south of the Village Theatre, Downtown Business District.

6. Construction was started by Automatic Laundry Co. on a commercial building north of Pleiss-Davis Furniture on October 28, Block 5, Uptown Business District.

7. Arbitration of the Richland Fuel and Lumber Co., Rental Renegotiation Dispute was consummated.

0005-11

B. Noncommercial:

1. The Richland Light Opera Company was authorized to use Building 137-X for its forthcoming production "The Red Mill".

2. The Free Methodist Church received permission to rent certain Government-owned equipment for use in grading the church premises.

3. Construction on the West Side United Protestant Church was completed and the church is now in use.

COMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of commercial enterprises:

Used Car Dealership

NONCOMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of non-commercial enterprises:

1. Letter from the Richland Squadron, Civil Air Patrol, requesting a long-term renewable lease.

1198066

700-1100-3000 AREA SERVICES SECTION
MONTHLY REPORT
OCTOBER 1952

NORTH RICHLAND FIRE AND POLICE UNITS:

North Richland Fire and Police Units were consolidated with Richland Fire and Police as of October 6, 1952, and these activities were transferred to Community Services Section. Patrol Building was vacated and transferred to AEC for contractor assignment.

STEAM AND GENERAL MAINTENANCE UNIT:

General Maintenance:

Acoustic tile was installed for sound proofing on the ceiling of one room in the northwest corner, 1st floor of the 5th wing of 703 Building.

Approximately 500 feet of Hauserman partition was installed to better facilitate the use of office space in 700 Area buildings. Most of this work was performed when offices were unoccupied.

Several cabinets, tables and shelving were made up, including 100' of 3-tier shelving for the 722-A storage area.

The Excessing Program remains steady, with two carpenters devoting full time to it.

Space was partitioned off to form offices in Stores 3000 Area warehouses to accommodate stores excessing personnel.

The theme for the three large AEC Area road signs was changed during the month. These signs are made up with removable panels which saves considerable time when signs are changed. It permits all sign painting work to be performed in the shops.

Approximately 75 small assorted signs were made up.

The Scotch-Lite applicator machine has been moved from Public Works hutment to the sign shop in 722 Building, which now performs all community sign work.

Fourteen man days were spent in road striping for the Transportation Section. Most of this was inside the Area barricade. Parking lots for 703, 705 and 760 Buildings were striped for car parking.

Electrical circuits were divided and two 36-circuit, Multi-Breaker panels were installed in the 1131 Building to relieve a hazardous overload condition.

The installation of fuse clips in electrical panels of 700 Area Buildings is 80% complete. This work will be finished when more clips are received. All panel terminals are being inspected and tightened at the same time.

A program for washing fluorescent light fixtures is being studied. A few fixtures were washed in the 760 drafting room and light meter reading increased approximately 20%. Other fixtures were lowered approximately one foot and light was further increased. As a result all fixtures in this drafting room are to be lowered and washed.

Miscellaneous small jobs were performed by Millwright and Sheetmetal personnel.

With the coming of fall weather it was found necessary to install additional heat in isolated areas. Seven radiators were installed in 700 Area offices.

The main air line was extended and additional outlets provided in the 702 Building for the use of air in maintenance and repair of telephone equipment.

The winterization of all air coolers and domestic irrigation water lines is under way and will be completed soon.

All storm sewer catch basins in the 700 Area are being cleaned and the lines flushed. Some of the catch basins are being raised to grade.

The overhaul of the number one boiler at 784 Heating Plant is almost complete.

An arrangement has been worked out for the use of an air motor in the installation of boiler tubes, which will greatly reduce manual labor and cut installation time approximately 50%.

Steam Operation:

No's. 3 and 4 boilers carried the load for the entire month, with No. 2 in reserve. At the close of the month all main distribution lines were energized and the heating steam was turned on to all occupied buildings connected to the distribution system.

The quantity of steam generated at 784 Heating Plant was 14.4% less than that for October of last year.

Night firing of boilers at 1131 area was continued, and during the latter part of the month full time operation was required. The two remaining operators were transferred to this unit on October 20.

Soft water usage at Kadlec Hospital decreased to an average consumption of approximately 50,400 gallons per day.

After completion of the storm sewer replacement west of the 5th wing of 703 Building, the cooling water from 784 Heating Plant was again routed back to the storm sewer. A noticeable improvement in the drainage of this line has since been observed.

Stockpiling of coal at the 784 Heating Plant was discontinued about the middle of the month, after sufficient reserves had been built up. Receipts are now being matched to consumption as far as practicable.

Steam Statistics:

Coal Consumed	1,285.85	Net Tons
Steam Generated	16,484.7	M. Lbs.
Steam Leaving Plant	14,012.0	M. Lbs.
Steam Delivered	11,835.8	M. Lbs.
Total Water Softened	3,668,000	Gallons
Soft Water Sent to Kadlec Hospital	1,561,220	Gallons
Soft Water Sent to 784 Heating Plant	2,106,780	Gallons
Soft Water Served to Kadlec Hospital	743.7	Hours

1198068

700-1100-3000 AREA SERVICES SECTION

Maintenance Backlog:

Foreman	Type of Work	Manhours	No. of Crew Days	Men on Routine	Total
Bennett	Electrical	619	24	4	7
McCartney	Machinist	10	2½	½	1
	Welder	50	12	½	1
	Sheetmetal	125	10	½	2
	Millwright	150	12	2½	*4
Vaught	Painter	426	26.5	0	2
	Sign Painter	224	28	0	1
	Carpenter	300	7.5	4	9
Marzyck	Pipefitters	830	34	1	**4
	Servicemen	---	--	2	2

* One Millwright terminated 10-31-52.
** Includes one pipefitter on Requisition.

Organization and Personnel

Number of Employees on Roll	Beginning of Month Exempt	Non-Exempt	Total	End of Month Exempt	Non-Exempt	To-
Maintenance & Steam	8	50	58	8	51	5
North Richland Fire	28	--	28	0	0	(
North Richland Patrol	6	14	20	0	0	(
North Richland Commercial Facilities	1	1	2	1	1	2
Total Employees	43	65	108	9	52	6

Personnel Changes During Month:

	Non-Exempt	Exempt
Transfers Out	14	34
Transfers In	2	
Retirement	1	
Requisitions Pending	1	

NORTH RICHLAND COMMERCIAL FACILITIES UNIT

Sixteen commercial facilities continued operation during the month - 9 in government-owned and 7 in privately-owned buildings.

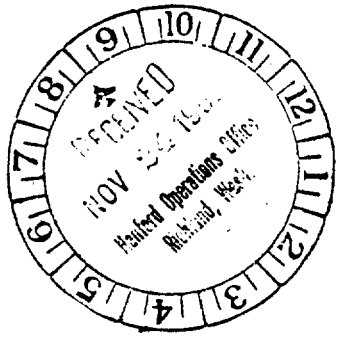
Population and retail sales and service volume in North Richland decreased slightly.

Twenty-nine routine Work Order Requests were issued during the month.

Letter was received from North Richland Tavern requesting approval to sell wine for consumption on the premises.

1198869

RECEIVED
NOV 21 1952
700 AREA
CLASSIFIED FILES



1198070