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10 _ 10	700 F41

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Personnel Distribution	
Manufacturing Department	gh I
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Separations Section Ed-1 throu	gn ro
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Separations Technology Unit Fb-1 throug	n ro
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Technical Services Unit	n ra
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Public Works Unit Lc-1 through	311 
Recreation and Civic Affairs Unit Ld-1 through	211 ·
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Engineering Unit	Rir .
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Commercial Property Unit	g
700, 1100, 3000 Area Services Section Im-1 through	gn .

Project and Related Personnel . .



### HANFORD WORKS MONTHLY REPORT

### GENERAL SUMMARY

### APRIL 1952

### Production Operation

Production continued on a high level. All forecasts were met or exceeded.

Machining yield was down, however, attributed in general to poorer rod quality. Rods used were from billets produced prior to January 1, 1952 and before casting techniques were improved.

The addition of sodium dichromate to process water was eliminated late in the month primarily to obtain beneficial effects in slug corrosion and a reduction of chemicals used in water treatment.

### Engineering and Technology

Construction work on Phase II of Redox Analytical and Plant Assistance Laboratory (Building 222-S) was confined to air conditioning duct, installation of light fixtures, and partition channels. Completion is being delayed pending equipment delivery.

Work is progressing on Works Laboratory Area. There is further delay on the Pile Technology Building due to non receipt of structural steel. Work is continuing on Program X. Water study by C. T. Main has been received. Continued work is being done on Purex.

Construction forces on April 14, 1952, in general, were placed on a five day week.

An Applied Research Unit was established in the Technical Section April 1, 1952. This unit has responsibility for basic and pioneering studies in physics, metallurgy, and chemistry which were formerly the responsibility of Pile Technology and Separations Technology Units.

### Personnel and Services

The housing situation still remains critical. No physical work has been started on the 500 private contractor housing units.

Plant roll decreased to 8,839. Turnover rate is slightly up at 2.29 percent.

Sickness absenteeism is following the regular seasonable trend, being down for the month. Rate: 1.87%.

The retroactive portion of the 3.58% general salary increase was paid to the employees during the month.

Budget estimates for FY 1953 and FY 1954 were completed and submitted to the Atomic Energy Commission.

One major injury was experienced during the month bringing the total for the year to date to four with a frequency rate of 0.66 compared with 0.38 for the corresponding period in 1951.



### MANUFACTURING DEPARTMENT

### APRIL, 1952

### METAL PREPARATION SECTION

The total production for the month was 143 tons which includes 64 tins of 4-inch material and 79 tons of 8-inch material. This represents 106 percent of the forecasted production. The machining yield was 78.8 percent for 4-inch material and 78.9 percent of 8-inch material, reflecting an overall decrease attributed to poorer rod quality. The rods currently in use were from billets produced prior to January 1, 1952 and before casting techniques were improved.

The canning yield was 83.0 percent and 64.2 percent for 4 and 8-inch material, respectively. This represents an improvement due primarily to re-etching and re-autoclaving material which had been rejected because of stains.

The Melt Plant produced 66 tons of billets with a billet yield of 84.6 percent and a solid yield of 94.5 percent. The reduction in the billet yield reflects greater incidence of outgassing requiring surface machining.

There were two autoclave failures of 4-inch pieces for a frequency of 0.06 per thousand. One was due to sidewall failure and the other to operator technique. There were five 8-inch piece failures for a frequency of 0.07 per thousand. All five were attributed to sidewall failures.

### REACTOR SECTION

The reactor input was 113.4 percent of forecast which included an increase of 140 units per diem production representing a new record achievement. This increase was primarily attributed to the reduced reactor outage time. The reactor output production was 122 percent of forecast resulting from discharge rescheduling and increases in input production, and also represents a new record.

There were sixteen uranium slug jacket failures during April of which eight were Group 8 and eight were Group 7 material. Ten failures were discharged within the scram recovery time avoiding approximately 250 hours of potential outage time.

The operating efficiency for the reactors was 89.7 percent representing an increase of 5.8 percent over the previous month. This increase was accomplished by the high number of "fast" pushes of ruptured slugs, and the decrease in outage time at F Area when efficient equipment and planning was employed to pressure test 909 process tubes for suspected water leaks. Leaks were found in tubes 0463-F and 0889-F. Moisture collection rate was slightly above normal at month end.

During this period there were two water leaks from ruptured tubes. Tube 4056-B at the B reactor and tube 3088-H at the H reactor. Moisture collection in both areas had returned to normal by month end.





The addition of sodium dichromate to the process water was eliminated late in the month primarily to obtain beneficial effects on slug corrosion and reduction of chemicals used in water treatment.

### SEPARATIONS SECTION

A total of 66 runs and 2 acid washes was started in the Canyon Building, representing 108 percent of forecast. One hundred and five runs were started in Redox for 125 percent of forecast. A total of 178 runs and 2 acid washes was processed in the Isolation Building and was 117 percent of forecast representing a new high record of bottled production.

The average cooling time in the bismuth phosphate process was 45 days with a minimum of 40 day material used. The average cooling time in the Redox process was 53 days with a minimum of 50 day material used.

Extensive investigation by Technical personnel indicates the plasticizer from the Tygon lining of the storage tanks was being leached by the ANN and contributed to emulsification in the presence of the organic solvent. This emulsion problem was somewhat alleviated when aluminum nitrate was added directly to the process from tank cars thus eliminating the storage, allowing the process to operate at a three ton per day rate. However, solid material in the ANN, previously settling out in storage, is contributing some difficulty. This may be eliminated by filtration.

A total of 6.4 tons of uranium as  $\rm UO_3$  was produced this month, with 39.1 tons being shipped. Approximately 2.5 tons of Mallinckrodt UNH was processed for comparative test purposes during this period. Production was curtailed awaiting the aging of UNH in lag storage.

### **GENERAL**

### Personnel

Total on Roll March 31, 1952 3154
Accessions 36
Separations 58

Total on Roll April 30, 1952

C. N. GROSS, MANAGER MANUFACTURING DEPARTMENT

3132

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### MANUFACTURING DEPARTMENT

### PATENT REPORT SUMMARY FOR

MONTH OF APRIL, 1952

Richland, Washington May 8, 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

K. H. Hammill

Remote Control Pipet Wiper

C. N. GROSS, MANAGER MANUFACTURING DEPARTMENT



### a. Redox Processing (Continued)

system was initiated. Ferformance of the extraction battery with fresh scrub solution was somewhat more satisfactory and comparatively stable operation of the extraction batteries indicated that an increase from the 3 T/day rate to a 3.5 T/day rate was possible. However, limitations on the supply of ANN from the vendor and difficulties arising from the increased solids content of the ANN (due to direct truck delivery without storage or settling) favored continued operation at 3 T/day. The presence of solid alumina in the vendor's ANN promises to be a problem for several months to come while plant rates are high and tending higher, and while new storage tanks are being filled. Investigations of centrifugation or filtration of the ANN in the 202-S Building are being expedited.

### b. B Plant Curtailment

Curtailed production in B Plant permitted the operation of the Extraction and Concentration Buildings on a 16 hour basis five days a week effective 4-28-52.

### 3. Special Operations

### a. Acid Washes - BiPO, Plants

Data are tabulated below which indicate the percentage of product recovered from the completed acid washes in terms of a standard charge:

Plant	extraction	Section 12 & First Cycle		Total Canyon	Total Thru Plant	F Cell Flush
T	4.4	9.7	6.4	20.5	<i>3</i> 8.5	33.9
B	2.1	12.8	21.7	36.6	13.7	63.8

### b. Product Recovery - Isolation Building

As a result of increased problems of accountability resulting from filter boat as well as sample can production in the Isolation Building, special flushes were made during the month. Eight cleanouts of the Neutsch filters yielded 29% of a standard run, four flushes of the boat system in Cell 2 yielded 47% of a standard run and five cleanouts of the AT systems recovered 89.4% of a standard run.

### c. <u>UO<sub>2</sub> from Mallinckrodt Material</u>

In order to enable Oak Ridge to compare the processing and related physical characteristics of UO<sub>3</sub> produced from Hanford and Mallinckrodt source material, 10 pots of Mallinckrodt UNH solution were in process in the UO<sub>3</sub> Plant at month end.



### 4. Schedule Variance

Actual production of regular material processed through the Isolation Building was 117.6% of the forecasted amount which established a new record. Material actually started in the BiPO<sub>4</sub> and Redox plants was respectively 108.2% and 125% of the amount forecasted at the start of the month.

### B. Equipment Experience

### 1. Operating Continuity

Redox operating continuity was generally good during the month. The four significant shutdowns experienced were as follows:

Shutdown for waste re-work	22.6 Hrs.
Shutdown for extraction battery flushing	20.3 Hrs.
Emergency shutdown - steam in air line	12.2 Hrs.
Shutdown for main steam line repair	40.0 Hrs.

Early in the month, pots and equipment in the UO<sub>3</sub> plant were cleaned in order to process some Mallinckrodt material for comparison purposes. Delay in receipt of this material held up production of approximately 11,000 pounds of Uranium which was held over to the first of May. Redox material for the UO<sub>3</sub> plant is being aged to allow decay of U-237. Progress on installation of the two 100,000 gallon aging tanks will determine when Uranium solution from the Redox plant can be processed. Completion of this installation is expected early in May.

### 2. Inspection, Maintenance and Replacement

### a. Redox ANN Storage Tank

On 4-3-52 a leak developed in one of the side plates of the Tygon lined 72% Aluminum Nitrate storage tank; SS-112, in the 211S Area. Immediate steps were taken to route leakage to the sewer and to move as much ANN solution as possible to the building and to other available storage tanks. The total loss of ANN solution was limited to approximately 110,000 lbs. Inspection of the failed liner indicated that, as in the case of the previous failure in tank SS-113, failure of the Tygon liner sheet to fuse with a joint sealing strip was the primary cause of the difficulty.

Since it was evident that Tygon lined tanks were not satisfactory and because of the possibility that leaching of the plasticizer was causing the emulsion troubles, temporary repairs to the SS-112 tank were expedited to prepare a temporary storage space for ANN on hand and arrangements were made with major construction to replace the Tygon lined SS-111 and SS-113





### a. Redox ANN Storage Tank (Continued)

with 100,000 gallon stainless steel tanks removed from the TBP nitric acid system. At month end both tanks were set in place and work was continuing on coil installation, lagging, etc.

### b. Metal Waste Sluncing Operation

Sluicing operations have been conducted normally throughout most of the month. Sluicing was discentinued on April 20, 1952, to allow the fog to disperse so that progress could be evaluated by visual inspection. This fog failed to clear until five days had passed in spite of repeated efforts to disperse it by the addition of  $\mathcal{O}_2$ , water and steam. Investigation disclosed that the filter in the tank ventilation system had become obstructed with moisture. The filter was removed and a vertical tube condenser was installed allowing the tank to "breathe" to the atmosphere. The fog cleared within 24 hours after the installation of the condenser and limited visibility was possible in the tank. Investigation is being made into more efficient methods for the dispersion of fog in these tanks, and into satisfactory methods for the prevention of filter plugging.

Visual inspection of the sludge in tank 101-U has disclosed that the sluicing operation has been effective. The sludge has been satisfactorily sluiced from the vicinity of the pump to the extent that the tank bottom is visible in several places.

### c. Storage Tanks - UO, Plant

Early in the month a leak developed at a grease fitting on the agitator seal gland on X-2 tank containing weak absorber nitric acid. Inspection of design data revealed non-acid packing and black iron lantern rings had been used in this agitator in addition to the black iron grease connections. By transferring the X-2 tank contents to the empty X-1 tank and back again, the agitators on both tanks were repaired. Acid packing, stainless steel lantern rings and stainless steel grease connections were installed in each agitator. The X-2 agitator shaft, severely scored by the original lantern rings, was replaced. The water seal connections were eliminated in favor of a dry seal system. At month end no leakage has occurred at these glands.

### C. Improvements

An invention report "Remote Control Pipet Wiper" was submitted during April by K. H. Hammill of the Separations Section Process Unit.

### D. Plant Development and Expansion

### 1. Project Status

### a. TBP - Project C-362

1 | 9 | 9 4 b The overall status of the project is expected to reach a point



### a. TBP - Project C-362 (Continued)

during May when operability tests may be started preparatory to the processing of "cold" uranium during the latter part of June.

### b. <u>UO - Project C-361</u>

Directive HW-158, Modification 12 was issued by the AEC on April 11, 1952. This directive authorizes an expenditure of \$2,170,000 for the project, a reduction of \$30.000 from the \$2,200,000 previously authorized.

Part C of the Project, which provides for UNH lag storage facilities, is scheduled for completion during May.

### c. Additional Waste Storage Facilities 200-W Area - Project C-418

On April 1, 1952 the Separations Section accepted the TY tank farm on a "ready for use" basis. A few exceptions, deferred because of some interference by the TBP Project, should be completed during May.

### E. Non-Routine Reports Issued

Document	<u>Title</u>	Author
HW-23964	Report on Trip to K-25 Plant at Oak Ridge	W. N. Mobley & A. R. Maguire
HW-24121	Six Month Report - Projects C-337 and C-378 (Iodine Treatment Equipment)	A. Bradway, Jr.
HW-24161	Six Month Report - Additional Unit for Hood #26 - Project C-444	R. W. Chiles
P.E.S. #9	Automotive Requirements (200-W)	W. H. Koontz
P.E.S. #10	Performance of Off-Gas Heaters 202-S Building	A. L. Vosmer
P.E.S.#13	Redox Ventilation Improvements	C, E. Hirsch
P.E.S.#14	Economic Analysis of Steel Material Handling - 272-W	J. C. Whipple

### III. PERSONNEL

### A. Organization

There were no major organizational changes in the Separations Section during April. Reduced production in B Plant has allowed the operations force to be reduced by 56, most of whom have been transferred to the Metal Preparation Section over a three month period.





### B. Force Changes

1.	Number of employees on roll	Monthly Roll	Weekly Roll	<u>Total</u>
	Beginning of Month End of month	280 <u>276</u>	1217 1200	1497 1476
	Net Change	- 4	<b>-</b> 17	- 21
2.	Personnel Changes	Monthly Roll	Weekly Roll	Total
	Transfers in Reduction of Force Transfers out Reactivates New Hires Terminations Weekly to monthly Removed from Payroll	0 0 - 3 0 0 - 2 1	11 0 - 10 0 2 - 18 - 1 - 1	11 0 - 13 0 2 - 20 0 - 1
	Net Change	- 4	- 17	- 21

### C. Safety Experience

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

### D. Radiation Experience

There were three Class I radiation hazard investigations held by the Separations Section. The Class I incidents investigated included two potential overexposures and one case of face contamination of a laboratory assistant with AT solution. The latter incident was aggravated by the very sensitive skin condition of the employee. Decontamination was effected under the direction of the Industrial Medical Section. Preliminary bioassay findings showed slight plutonium deposition which was well below the permissible limit.

At month's end, it appeared quite certain that a significant number of radioactive particles had been discharged from the Redox stack. The problem is being jointly pursued by the Manufacturing and Radiological Sciences Departments.

The total emission of Iodine 131 from B, T, and S Facilities showed an increase primarily attributed to S Facility. The total average rate was approximately 6.7 curies/day.



### STAFF

General Manager	1. Prout
Manager, Schenectady Office B. 1	R. Prentice
Assistant General Manager	E. Johnson
Assistant to the General Manager, General Administration G. G.	. Lail
Assistant to the General Manager, Technical W. 1	I. Patnode
Counsel	C. Butler
Manager, Finance	. Smith
Manager, Employee and Public Relations	E. Callahan
Director, Radiological Sciences	1. Parker
Director, Medical	D. Norwood
Manager, Engineering	B. Greninger
Manager, Manufacturing	W. Gross
Manager, Utilities and General Services F. I	E. Baker
Manager, Community Real Estate and Services L. I	F. Huck



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	FORCE REPORT			APRIL, 1952		
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GENERAL	23	24	35	37	58	61
LAW	2	2	14	4	6	6
ENGR. DEPT.				<u>.</u>		
General	5	5	6	6	11	11
Design Section	120 181	116 174	440 43	59 347	163 621	175 521
Project Section Technical Section	TOT	1(4	440	341	021	721
Administrative	5	6	3	14	8	10
Pile Technology	173	174	177	133	350	3.07
Separations Tech.	109	116	66	62	175	178
Technical Services	30	30	148	145	178	175
Analytical	88	90	145	204	233	294
MANUFACTURING DEPT.						
General	22	22	11	14	33	36
Reactor	193	196	951	977	1144	1173
Metal Preparations	66	67	395	373	461	440
Separations	268	<del>26</del> 6	1254	1203	1522	1469
MEDICAL DEPT.	42	43	231	228	273	271
RADIOLOGICAL SCIENCES DEPT.						
General	3	2	2	2	5	4
Records & Standards	24	25	140	140	164	165
Biophysics	46	46	64 46	64 46	110 83	110 84
Biology	. 37	38	40	40	03	04
FINANCIAL DEPT.		_				- 1
General	4	. 4	12	10	16	14
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Mfg. Cost		9 10	31 85	32 85	39 95	95
Gen. Acctg. Payroll	10 11	11	90	- 88	101	99
Gen. Cost.	10	10	36	35	46	45
Internal Auditing	7	7	5	5	12	12
EMPLOYEE & PUBLIC RELATIONS	40	40	71	68	111	108
UTILITIES & GENERAL SERVICES						
General	18	18	13	14	31	32
Elect. Dist. & Telephone	31	32	147	147	178	179
Transportation	41	42	460	472	501	514 403
Purchasing & Stores	90 17	90 21	322 46	313 47	412 63	<b>68</b>
Statistical & Computing Plant Sec. & Serv.	11	£1	40	<del>-7</del> (	-	30
Patrol & Sec.	57	58	594	590	651	648
Safety & Fire	42	41	107	105	149	146
Office Services	28	27	313	312	341	339
COMM. REAL ESTATE & SERVICE	183	184	352	351	535	535
TOTAL	2049	2059	6906	6780	8955	8839
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Richland, Washington May 8, 1952

## MANUFACTURING DEPARTMENT METAL PREPARATION SECTION APRIL, 1952

### I. RESPONSIBILITY

There were no changes of responsibility during the month.

### II. ACHIEVEMENT

### A. Operating Experience

### 1. Statistics

<u> </u>	<u>farch</u>	<u>April</u>	Year To Date
Bare Pieces Machined (Tons, 4")	94	49	353
Machining Yield (%, 4")	80.9	78.8	79.1
Bare Pieces Machined (Tons,8")	75	106.7	266
Machining Yield (%, 8")	80.7	78.9	79.6
Acceptable Pieces Canned (Tons, 4")	75	64	364
Canning Yield (%, 4")	74.0	83.0	77.7
Acceptable Pieces Canned (Tons, 8")	69	<del>79</del>	187
Canning Yield (%, 8")	58.6	64.2	62.1
Acceptable Pieces Canned (% Fore-			
cast)	99.3	105.9	102.7
Autoclave Failures (No./M,4")	•09	.06	.08
Autoclave Failures (No./M,8")	.09	.27	.16
Briquettes Produced (Tons)	27	28	107





· ·			
	March	April	Year To Date
Chip Recovery Yield	87.8	87.3	86.8
Billets Produced (Tons)	68	66	226
Billet Yield (%)	86.5	84.6	84.6
Solid Yield (%)	94.4	94.5	93.4
Oxide Burned (Weight Out Tons)	8	7	28
Poison Canned (Pieces)	3196	3767	8844
Chemical 68-56 Canned (Pieces)	0	0	296
Chemical 10-66 Canned (Pieces)	0	47	1404
Poison, Chemical 68-56, 10-66	450	556	1454
canning (Man Hours)			
Special Requests (Man Hours)	396	112	1018
305 Routine Tests (Man Hours)	156	148	357
305 Special Tests (Man Hours)	327	370	1010
Maximum Steam Generated			
(M. lb./hr.)	28.00	28.00	
Total Steam Generated (M.1b.)	16093	12300	
Ave. Rate Steam Generated			
(M. lb./hr.)	21.60	17.00	
Coal Consumed (Tons)	883	876	
Sanitary Water from 3000 Area			
(Million gal.)	27.5	28.2	
Well Water Pumped (Million gal.)	6.0	12.0	
Total Water Average Rate (gpm)	617	653	
Chlorine Residual (ppm)	.32	•5	

### 2. Activities

The machining yield was slightly less than March because of poorer rod quality. The poorer quality rods were from billets cast prior to January 1, 1952, at which time casting techniques were improved.

The overall canning yield was improved by re-etching and re-autoclaving material which had been rejected because of stains under the more stringent inspection standards inaugurated in March. Approximately nine percent of the total production was reprocessed. Investigation for the cause of the stains and corrosion continued with some small improvements effected.

Of the autoclave failures of four inch slugs, one was due to operator technique and the other was can sidewall failure. The five failures of eight inch slugs were sidewall failures.

The lower billet yield resulted from a greater incidence of outgassing which required surface machining of a greater number of billets than during the preceding month. This effect is believed attributable to the use of a new mold wash. Use of this wash has been discontinued pending further investigation.



HW-24337 \_ De.

### 3. Special Operations

Production Test 313-105-2M - "Triple Dip Canning and Irradiation of Eight Inch Uranium Slugs Fabricated in Heavy Walled Aluminum Cans" (HW-22463). Approximately 20,000 acceptable slugs were fabricated in accordance with this test during the month. Non-seating and frost test continue to be the major reject causes. Of the total of 100,000 pieces covered by this test approximately 77% have been machined and 50% have been canned.

Special analysis of approximately 40 samples of coal, gas and water were made in connection with the boiler efficiency test being conducted in 100-H Area.

Approximately 200 special uranium billet samples were received in the Analytical laboratory during the month. This increased volume resulted from processing a large volume of off-plant uranium scrap of unknown purity. Analysis indicates billets of normal quality chemically have been processed. Since scrap iron and abnormal residues rich in lead have been found in the melt plant furnaces, the procedure of sampling every heat containing off-plant scrap will be continued.

### 4. Schedule Variance

Machining production was 11% above forecast due to a two week delay in transferring personnel to the 100 Areas.

Canning production was 5.9% above forecast due to improved yield.

The analytical laboratory is approximately one week behind schedule in providing billet analysis due to the large increase in number of uranium billet samples.

### B. Equipment Experience

Three of the four 75 ampere welding transformers have been replaced with 200 ampere capacity. Utilization of higher current is pending change of



### HW-24337



specifications for this operation.

The marking fluoroscope transformer and oil circulating pump failed and was replaced. As this unit is operating above its maximum rating, procurement of replacement parts of higher rating is being investigated.

The chip recovery press operating controls were modified to assure better operation and less chance for human error. Control valves were modified to correspond with direction of travel and limit switches installed to prevent excessive ram travel. This has been a frequent source of failure in the past.

### C. <u>Improvements</u>

### 1. Adoptions

The use of new impact extruded caps for eight inch cans has resulted in a savings of approximately \$1.70 per ton of eight inch material canned. The saving is attributed to the nearly 100% acceptability of the caps as received.

Increase of 8 inch slug production required additional etch trays. By modifying trays used for 4 inch slugs to accommodate either size a saving of \$840 was realized.

A device for receiving slugs after the cut-off operation in the Gisholt turret lathe has practically eliminated breakage of the parting tool due to work "climbing." Extended application will determine the saving involved.

In accordance with document HW-23744, "Authorization for Process Change," the marred surface specification for acceptable canned pieces was changed from a maximum of .002 inches to a maximum of .004 inches. All pieces having mars greater than .003 inches will be identified.

### 2. <u>Inventions and Discoveries</u>

All people in the Metal Preparation Section engaged in work which might be expected to result in inventions or discoveries have reported that no inventions or discoveries were made during the period covered by this report.

### D. Plant Development and Expansion

### 1. Project Status

<u>Project C-199 - 300 Area Sewage Disposal System</u>
Construction work on this project was negligible during the month except for clearing the old leaching trench.





### Metal Preparation Section

Project C-433 - Expansion of 300 Area Power House and Pumping Facilities. Design is approximately 99% and construction 4% complete. The east wall of the power house has been removed for building expansion and foundations have been poured for the new boiler, compressors and turbo-generator. Work is also progressing on the temporary service shelter.

Project C-481 - Equipment for 8" Slug Manufacture.
Fabrication of equipment is essentially complete except for one can gauge.

### 2. Plant Engineering

Formal cost standards for tin and argon were issued during the month. To date approximately 95% of the total cost incurred for essential materials in producing canned slugs has been covered by cost standards. Machining labor standards were revised to reflect changes resulting from increasing the feed rates on the roller-turner lathes.

### E. Non-Routine Reports Issued

Number	<u>Ti tle</u>	Author	Date
	Report on ASTE Industrial Exposition	J. H. Kelly	4-23-52
<del></del>	Productive Maintenance Pro- gram - 300 Area	G. H. Van Nortwick	4-4-52

### III. PERSONNEL

### A. Organization

No change.

### B. Force Changes

	MOUTULY	weekly	Total
Beginning of Month End of Month Net Change	66 <u>67</u> 1	401 <u>383</u> - 18	467 450 - 17
	~		

### C. Safety Experience

There were one major and two sub-major injuries in the Metal Preparation Section during the month.

### D Radiation Exposure

Weekly exposures of 370 mrep and 320 mrep were reported for two melt plant operators. The apparent cause of the exposures was inexperience and abnormal crucible handling. Since these incidents written procedures have been revised for crucible preparation and oxide handling. These procedures plus closer surveillance of the operators should reduce melt plant exposures.



Richland, Washington May 8, 1952

## MANUFACTURING DEPARTMENT REACTOR SECTION APRIL, 1952

### I. RESPONSIBILITY

Assigned responsibilities of the Reactor Section were not changed during April.

Effective April 1, 1952, responsibility for the work of a plant assistance nature for process water treatment was transferred from the Power and Maintenance Unit to the Process Unit along with personnel assigned to this function.

### II. ACHIEVEMENT

### A. Operating Experience

The total reactor input production was 113.4% of forecast and 3.1% greater than for March. The month's total production and the per diem production represent new record achievements for the second and third consecutive months, respectively. The per diem production exceeded that of March by 140 units. This increase is primarily attributable to reduced reactor outage time over the previous month. The reactor output production was 22% over forecast due to discharge rescheduling, a portion of which has been necessitated by the increases in input production over forecast. Established maximum operating levels were increased 10 MW during the month.

There were 16 uranium slug jacket failures during April, ten (10) of which were discharged within the scram recovery time limitation. It is estimated that these "fast" discharges made it possible to avoid approximately 250 hours of potential outage time.





### A. Operating Experience (Continued

1. <u>Statistics</u>	В	D	DR	<u>F</u>	<u>H</u>	Total or Average
Reactor Time Operated	85,2	94.6	90.1	84.,6	93.9	89.7
Efficiency (%) Reactor Outage Time (Hrs.)	07.2	94.0	90.1	04.0	72.7	07.7
Plutonium Production	104.1	38.9	71.5	103.0	44.5	362.0
Production Tests	<u>25</u> 106,6	38.9	$\frac{1}{71.5}$	7.7	44.5	10.2 372.2
Total	106.,6	<b>38</b> .9	71.5	110,7	44.5	372.2
Reactor Unscheduled Outage	<b>70</b> /	20 0	22.0	<b>5</b> 0 (	,, =	2/0.1
Time (Hrs.)	79.4	<i>3</i> 8.9 10.66		52,4 38,45	44.5 23.82	249.1 134.27
Metal Discharged (Tons)	26.96	10.00	34.37	<i>3</i> 0.45	27.02	134.21
Water Pumped (MM gals.) Bldg. 190 to Reactor	1427	1581	1680	1430	1813	7931
Bldg. 181	2166		37	1921	2166	10190
Steam Generated (MM lbs.) Coal Consumed (Tons)	115.4 7570	198 136		112.8 7998	91.1 6154	517.5 35406

### 2. Activities

Four reactor process tubes were found to be leaking during the month. Details regarding these tube failures are given below:

- (a) The rate of moisture removal from B reactor increased from 5 to 19 gallons per day between April 8 and 14.

  On April 14, the reactor was shutdown to remove ruptured slugs from tubes 4056-B and 4086-B. Examination of the former tube revealed a small hole in the vicinity of the stuck, ruptured slug. After operation was resumed, the rate of moisture removal returned to normal, apparently confirming this tube as the source of the additional moisture.
- (b) The F reactor was shut down on April 25, after a sharp increase in the rate of water removal indicated a leaking process tube. A total of 909 tubes in the lower half of the reactor was pressure tested of which 0463-F and 0889-F were found to be leaking and were setup as air tubes. Forces up to 2000 lbs. were required to remove the charge from tube 0889-F. Data at month end was not sufficient to conclude whether or not other leaking tubes were present. An outage of only 49.8 hours was required to accomplish the foregoing with the testing being performed at a rate of 47 tubes per hour. This rate, which represents a considerable increase over previous experience, resulted principally from the adoption of a different type expanding plug for the leak testers and a more efficient arrangement of "C" elevator equipment.



### 2. Activities (Continued

(c) A decrease in reactivity of the H reactor and a sudden increase of reactor atmosphere pressure on April 12 led to the detection of a rupture in tube 3088-H, along with a slug jacket failure in the same tube. Corrective action was taken and the rate of moisture collection from the reactor has returned to normal. During the removal operation, the 15 slugs downstream from the stuck slug were forcibly ejected from the tube, apparently when water in contact with the hot metal flashed to steam. No personnel were in the discharge area at the time of the incident. A detailed description of the 3088-H tube rupture incident is given in HW-24303. Document HW-24186 contains a report of the Radiation Incident Investigation.

The addition of sodium dichromate to process water for B, D, DR and H reactors was discontinued on April 18 and for F reactor on April 25. (Reference source, Document HW-24062) This change was made primarily to obtain beneficial effects on slug corrosion. Additional benefits are anticipated from the saving of approximately \$185,000 annually in dichromate costs plus a reduction of 16 operators in the Power sub-unit based on five reactor operation. Steps were taken to discontinue all work on sodium dichromate equipment installation for C reactor.

Considerable variation in the activity of effluent water from the various retention basins was encountered during March and April. The activity frequently exceeded 10 mrep/hr at which point it has been the practice to begin diluting the water before it enters the river. The activity is associated with the manganese content of the river water which is higher than normal at this season. At 100-D and 100-H Areas the readings this spring are reasonably normal when an adjustment is made for power level changes. The unusually high readings at 100-B and 100-F Areas may be related to construction activity near the 100-B Area inlet pump house and to the alum coagulation test at the 100-F Area filter plants.

### B. Equipment Experience

The general mechanical condition of the reactor components and equipment continued good throughout the month. An outage at DR reactor, begun on April 23 for removal of a ruptured piece, was prolonged when the screen assembly at the solids feed pump failed during a purge, causing plugging of some of the cross-header and cone screens. A total of 12.2 hours outage time was chargeable to this incident. At D reactor on April 2, No. 32 vertical rod dropped due to failure of the clutch and resulted in an outage of 0.1 hours.

At D reactor, No. 8 horizontal rod, which was previously reported to have a water leak in the junction block of the rod tip and a gas leak in the thimble, was repaired and returned to service. No. 2 rod was removed from service on April 11 since it had been binding severely. It is planned to complete repairs in the near future.



### \_\_ Equipment Experience (Continued)

Settling of the floor and steam rising from an expansion joint led to inspection beneath the floor slab of Building 105-DR fan room. A sewer line leak is suspected to have caused settlement of the fill under the floor. Repairs will be made as soon as necessary arrangements are completed.

The fire and sanitary water high tank at 100-D Area was returned to service following completion of repairs. The tank had been out of service since December because of excessive leakage.

### C. <u>Improvements</u>

Discontinuing the addition of sodium dichromate to process water which will result in considerable savings is reported above under "Activities."

The Operations Unit began furnishing the Pile Technology Unit with three-month forecasts of reactivity and xenon-poison changes resulting from metal discharges. The use of these forecasts is expected to result in more efficient flattening of the reactors because of better placement of special irradiation materials. The forecasts are made possible by using an IBM calculation method devised by the Production Scheduling group of the Operations Unit.

A means of continuously sampling the outlet water from the Building 107-H retention basin was developed using existing equipment. Continuous sampling will give a better indication of the long-lived isotopes in the effluent water being discharged to the river.

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

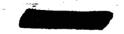
### D. Plant Development and Expansion

### 1. Project Status

The most significant Reactor Section projects are reported below. Further details concerning projects will be found in the report, "Status of Reactor Section Projects, Informal Approval Requests and Budget Items," F. A. R. Stainken to E. P. Lee, dated April 18, 1952.

C-431 (100-C Plant)

The construction of the reactor and of the water plant are both approximately 60% complete. Graphite lay-up and insertion of process tubes were completed on April 26. Neutron diffusion length measurements of the moderator are complete. All Building 190 process pumps and their drive assemblies have been set in place and operating tests on pumps No. 8 and 9 are underway.





### D. Plant Development and Expansion

### 1. Project Status (Continued)

- C-438 (Ball 3X Facilities for B, D, DR, F and H Piles)
  Construction forces have completed the construction of
  battery rooms in Building 105-B, D, F and DR. Installation of battery room equipment is approximately 25%
  complete in Building 105-B. Fabrication of Ball 3X installation equipment and ball recovery system components
  is well underway in the White Bluffs shops. Satisfactory
  delivery dates have been established for most of the electrical items, stainless steel for the flexible rods, and
  the boron steel balls for B, D and F reactors. An experimental loading of glass balls was made in tube channel
  2577-DR. (See PT-105-505-E.)
- C-472 (Thermocouple Equipped VSR Thimbles, 100-B and D meas)
  M-608 (Differential Thermohm Systems for Power Level Measurements, 105-B, D, DR, F and H.)
  The "Project Financial Closing Statements" for these projects were issued during April.
- C-482 (Pile and Pile Water Plant Improvements, Parts I and II)
  A revision of Part I of the Project Proposal is awaiting Atomic
  Energy Commission approval. Part II requesting \$2,250,000 to
  accomplish the revised scope of the project has been drafted
  for comment. Over-all design is approximately 40% complete.
- RDA-DC-3 (Improved Reactor Design)
  The following design criteria describing reactor components were reviewed in meetings attended by Manufacturing and Engineering Department personnel in order to expedite preparation for presentation to the Work Committee: Ball 3X System, Horizontal Rods, Ink System, Process Tube Assembly, Thermal Shield, Biological Shield, Process Piping, Downcomer, Moderator and Vertical Rod System.
- RDA-DC-6 (Water Plant Design Development)
  Documents HDC-2118 and HDC-2119 describing the 100-X Reactor
  Water Plant and Coyote Rapids area layout as proposed by the Chas. T. Main Co., were reviewed during the month.

#### 2. Plant Improvement

A number of improvement studies were active in the Reactor Section during the month. These studies are generally aimed at decreased costs and/or increased production. (Details concerning these studies are given in documents HW-24309 and HW-24303.) The most significant items are reported below.

## DECLASSIFIED

## Plant Development and Expansion 2. Plant Improvement (Continued)

- (a) Poison Addition Method The equipment and method for reactor control with poison columns was demonstrated on the Building 108-D mock-up for members of the Reactor Section and the Pile Technology Unit. It is anticipated that overall production gains of approximately 5% will be possible at B, D, DR and F reactors under present operating limitations by eliminating temporary poison during the startup transient period. Additional gains may result from better flattening, increased scram recovery time and reduced minimum downtime.
- (b) Review of Power and Water Problems K. R. Leifermann began a special assignment to define the Reactor Section power and water problems and to determine a practical order for accomplishing their resolution. Conferences were held during the month with representatives of various plant groups concerned with current or past proposals, and an initial list of improvement items was prepared.
- (c) 100 Area Boiler Performance A series of boiler performance tests were initiated at Building 184-H on April 8 in connection with studies directed at increased steam economy.

Production tests of major development significance are indicated below:

PT-105-313-2M (Irradiation of 8" Uranium Slugs)
An additional 498 process tubes in DR and H reactors were charged with eight-inch slugs during the month, bringing the total charged to date to 869 tubes.

PT-105-435-P (Graphite Temperature Increase of the F Pile)
This test was completed with the discharge of the graphite samples during the outage of April 8. Pending issuance of a final report, the F reactor is being operated with a 410°C graphite limitation in accordance with the provisions of the production test.

PT-105-503-E (Use of Activated Silica as a Coagulation Aid for Aluminum Sulfate)

Water treatment at 100-F Area as outlined in this test continued. The only adverse effect noted has been high retention basin effluent activities. Recent changes in the river water quality required no change in coagulant feed rates at Building 183-F while other areas were forced to increase ferric sulfate feed by a factor of 3. Water quality as measured by the rate of film formation continues to be excellent.



#### E. Non-Routine Reports Issued

Significant non-routine reports issued by the Reactor Section during April included:

"The Use of Dicalite Diatomaceous Earth as a Purge Material in the 100 Areas - PT-105-3-M.R." HW-24055.

"Results of Auxiliary Nozzle Closure on 190 Building Steam Turbine Performance" - HW-23826.

"Semi-Annual Report = Reactor Section Landlord Properties", E. P. Lee to C. N. Gross, dated April 10. 1952.

A description of slug jacket failures encountered during April will be found in HW-24296.

#### III. PERSONNEL

#### A. Organization

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

#### B. Force Changes

	Beginning of Month	End of Month	Net Change
Section General	3	3	0
Operations	245	259	14
Plant Engineering Services	22	23	1
Power & Maintenance	809	805	- 4
Process	20	22	2
Radiation Monitoring	<u>57</u>	58	_1
Section Total	· 1156	1170	. 14

Changes during April consisted of 4 terminations, 2 new hires, 4 deactivations, 1 reactivation, 30 transfers into and 11 transfers out of the Section.

#### C. Safety Experience

An employee of the Power and Maintenance Unit sustained a perforation of the right ear drum and moderate burns on the skin of the ear from a piece of burning slag while welding beneath the bed of a truck at the 100-B Area burial grounds. This injury, which occurred on April 30, was classified as a major injury on May 5.





#### D. Radiation Experience

Three Class I Radiation Hazards incidents occurred during the month. One involved entry to the OP Far Level of Building 105-B before radiation surveys were made to establish dosage rates. The second involved the forced ejection of metal downstream from a ruptured slug in a pricess tube at Building 105-H, due to pressure within the tube probably caused by steam formation. The third incident involved inadequate timekeeping, which resulted in an employee receiving an exposure of 515 mr during a two-week period. Investigations of these incidents are reported in documents HW-24126, HW-24186, and HW-24285, respectively.

During the month, work was started on the production of an educational film covering radiation hazards control. This film is planned primarily for 100 Area training purposes although it will be available for use of other groups where applicable. The Public Relations and Reactor Sections are collaborating in this program.

#### E. Training

In order to increase the emphasis on minimizing costs a number of meetings were held with Reactor Section supervisory groups. The meetings were conducted by the Reactor Section Manager or G. T. Van De Carr of the Financial Department with discussion centering around the various elements of costs and the monthly "Statement of Manufacturing Cost". Practically all supervisors of the Operations Unit and higher supervision of the Power sub-unit attended these meetings.

The program for obtaining and training qualified engineering and supervisory personnel to meet the requirements of the Section was continued. At month end, 30 employees are receiving on-the-job training, including 9 Technical Graduates on assignment under the Rotational Pool Program.



Richland, Washington May 8, 1952

## MANUFACTURING DEPARTMENT SEPARATIONS SECTION APRIL, 1952

#### I. RESPONSIBILITY

On April 5, 1952 the Manufacturing Department approved preliminary acceptance of the majority of the facilities of Phase IV of the TBP Project.

On April 1, 1952 the Manufacturing Department assumed responsibility for the new TY tank farm in the 200-W Area.

#### II. ACHIEVEMENT

#### A. Operating Experience

#### 1. Statistics

a.	Bismuth Phosphate Operation	<u>s</u>					
		B Pla	ant	T Pl	.ant	Combi	<u>ned</u>
			Acid		Acid		Acid
	•	Normal	Wash	Normal	Wash	Normal	Wash
<b>M</b>	atomical in Common Dilan	7 <del>*</del>		50	7	66	2
Charges	started in Canyon Bldgs.	77	1	59	1		
Charges	completed in Conc. Bldgs.	9	1	65	1	74	2
Special	charges - Conc. Bldgs.	17	7		3	2	0**
	Completed - Isolation Bldg.	11	1	66	1	77	2
-	Waste Losses	2.	.7	2	2.9	2	8



Separations Section

	B Pl Normal	ant Acid Wash	r P	l <u>ant</u> Acid <u>Wash</u>	<u>Combi</u>	ned Acid Wash
Average MWD/Ton Special Charges - Isolation Bldg. Average purity completed charges Material balance thru Isolation Yield through process Average cooling time (Days) Minimum cooling time (Days)	. 6	02	. 56	68	9 10 10 4	1 8.9 1.0 0.7 5

<sup>\*</sup>Reduced Schedule

#### b. Redox Operations (March 29th thru April 30th)

March	<u>April</u>
66	107.6
64	101
43.1	75.0
· -	3.1
	2,66
_0,0	
100 71	98.81
	99.35
77.44	77022
	00
	.99
	1.26
	586
	53
53	50
99.0%	99 <b>.6%</b>
	•
<u>April</u>	To Date
	66 64 43.1 3.1 1.96 100.71 95.42 .74 3.55 610 55 53 99.0%

	<u>April</u>	To Date
Uranium drummed, Tons	6.42	74.49
Uranium shipped, Tons Average cooling time, days	39.15 68	73.95 86
Minimum cooling time, days Waste loss, %	68 0.85	68 0.28

#### d. Power

	March	MULTI
Raw water pumped, gpm	6,618	6,379
Filtered water pumped, gpm	1,143	1,212
Steam generated, M lbs/hr	174	137

<sup>\*\*</sup>Includes charges from Redox



#### d. Power (Continued)

<del></del>	<u>March</u>	April
Maximum steam generated. M lbs/hr	263	243
Total steam generated, M lbs	129,826	98,695
Coal consumed, tons (est.)	7,079	6,061

#### e. Waste Evaporation

	April	To Date
Gallons feed processed, 200-W	407,000	5,794,573
Percent volume reduction	72,5%	73.2%
Gallons feed processed, 200-E	442,000	1,895,621
Percent volume reduction	72.4%	73.7%

#### f. Waste Storage

	<u>Batches</u>
Metal Waste reserve storage capacity - T Plant	790 (1)
1st Cycle reserve storage capacity - T Plant	1020
Metal Waste reserve storage capacity - B Plant	627
lst Cycle reserve storage capacity - B Plant	405
Redox Waste reserve storage capacity	2970 (2)

- (1) Increase due to addition of two tanks of the new TY tank farm.
- (2) Based on April volumes.

#### g. Analytical Control

Laboratory	<u>Samples</u>	<u>Determinations</u>
200-W Isolation Standards	3872 928 <u>1608</u>	6552 - 2577 <u>1776</u>
Total	6408	10,905

#### 2. Activities

#### a. Redox Processing

Since results of an intensive investigation by Technical personnel seemed to indicate that leaching of the plasticizer (Tricresyl Phosphate) from the Tygon lining of the 72% Aluminum Hydrate storage tanks may be partially responsible for the current emulsion problems in the columns, extended operation of the process with "clean" ANN solution was desired for comparative purposes. Accordingly, on 4-11-52, direct tank truck delivery of ANN to the building make-up





#### ENGINEERING DEPAREMENT

#### APRIL 1952

#### TECHNICAL SECTION

The neutron diffusion length and the average purity level of the C Pile graphite were determined. The purity value determined from test pile reactivity data and from the assignment of graphite heats to various pile zones is equivalent to the value for H Pile.

Continued studies of slug weight loss data and slug temperatures have indicated that new corrosion limits on pile operating levels may be specified. These new limits are sufficiently high that corrosion should not be a factor in limitation of power levels within the next year.

Warping of the eight-inch slugs during the heat treating-quenching cycle has resulted in excessive penetration of the can wall, in some cases causing failure during the autoclave treatment.

Sodium dichromate was eliminated from process water at all piles during the month. Additional studies of pile water recirculation and of alumactivated silica treatment for process water are continuing. Experiments have indicated that corrosion decreases with decreasing pH. but pitting becomes more of a problem.

The values of the buckling of the four lattices investigated thus far have been re-evaluated following the discovery that background corrections had been incorrectly made. The changes are slight in all cases except for the seven-inch lattice where a previous discrepancy between different methods of measuring the buckling (indium foils and boron trifluoride counters) has been largely resolved in the re-evaluation.

Data previously reported showed that the Metals Comparator was capable of detecting the degree of transformation of the uranium for slugs produced from the same rod. Preliminary indications are that the above correlation does not hold for different rods because of either varying grain orientations, beta phase cooling rates, or internal stresses.

The degree of burnout of U-235 for 600 MWD exposure determined by mass spectrometric analyses of UO3 Lots 17 through 25 ranged from 0.645 to 0.652% U-235. Check analyses by ANL verified these results.

The Redox plant operated with the primary feed (IAF) on stream for 87 percent of the time. Delivered production increased significantly over the previous month. Phase emulsification was found to be aggravated significantly by impurities picked up by the aluminum nitrate solution while stored in Tygon-lined tanks. Subsequent to by-passing these tanks by making ANN deliveries directly to the plant, the emulsification troubles decreased and improved process performance resulted. Activity and purity specifications





Engineering Department

HW-24337

for the products were met routinely. One batch of waste was reworked successfully.

In connection with start-up operations of the RM line, equipment difficulties of increasing severity developed during the month, particularly in the vacuum equipment of the Task II Hydrofluorination. Efforts to improve the reduction yields (ca. 90%) obtained with a sulfur booster developed several promising leads. Cross-checks between RG and RM performance with sulfur indicated that mechanical handling and equipment design in the RM line might be responsible for the poor yields, since very nearly normal yields were obtained in the RG line using sulfur. An abnormally high reject rate occurred in the coating operation due to dirt and lint.

A recording detector for airborne alpha emitters was put into experimental operation at the Redox Analytical and Plant Assistance Laboratory. Rise and fall of alpha backgrounds apparently from Radon in air was observed. This device has paired detector-amplifiers and is intended to record the contamination-above-background at one location as determined by the background at another location.

Construction work on Phase II of the Redox Analytical and Plant Assistance Laboratory (Bldg. 222-S) was confined to installation of air conditioning duct work, installation of light fixtures and locations of channels for the partitions. Completion will be delayed pending delivery of the laboratory furniture from the A. S. Aloe Company.

In the Works Laboratory Area construction progressed through the structural steel phase in the Library and Files, Radiochemistry and Radiometallurgy Buildings. There has been a further delay in receipt of structural steel for the Pile Technology Building. Preliminary designs for the interior of the Mechanical Development Building had to be returned to the subcontractor for further work and some delay can be expected. Work continues ahead of schedule on Outside Facilities and Utilities.

#### DESIGN SECTION

Design Section engineering effort during April was distributed approximately 40% to research and development, 37% to reactor design and 23% to other design projects.

Separations plant design development activities included further refinement of the Purex engineering flow diagrams and establishment of a recommended capacity for a new Purex-type separations plant for processing Program "X" irradiated uranium at the 600 MWD/T enrichment level. The final reports covering the Vitro Corporation assistance program studies are being reviewed and evaluated for incorporation into project scope documents for the proposed expansion program.

Results of the study conducted by C. T. Main, Inc. (HDC-2118) were received. This report presented an outline of the design of two separate and independent water plants for two 1300-MW reactors at the Coyote Rapids Site, each capable



of providing 100,000 to 140,000 gpm and making use of larger pumping units. electrical emergency pump drives, and a central control house containing emergency generators and equipment.

Engineering development was continued on the reactors with satisfactory progress attained on the Prepakt program for the heavy aggregate concrete shield. The General Engineering Laboratory has completed design development of an electromagnetic ball system and fabrication of a test model was started. Preliminary hydraulic tests on a 1/5 scale model energy absorber-type downcomer were conducted at Washington State College. Studies are under way to obtain a suitable substitute for the high-activity potassium tetraborate in the "ink" system.

The development work assigned to the General Engineering Laboratory on the preliminary design of a machine for mechanizing the 300 Area slug canning and quench process has been completed and recommendations have been submitted by the General Engineering Laboratory.

The responsibility for technical direction of the C. T. Main Contract for the preliminary design of two new water plants and auxiliary area facilities was assigned to the Design Section. C. T. Main was advised to proceed with the preparation of scope and the preparation of requisitions covering critical procurement items.

A.E.C. Work Authority #121, increasing authorized funds to \$300,000 for the design of "X" Reactor (C-494), a Water Plant and other 100 Area facilities, and a Separations Plant and associated facilities, was received during the month. Design of the 105 Building and services was retarded by three major changes: Modification of structural steel design as a result of bomb blast studies, modification of the electrical power system for compatibility with the water plant, and a change in the heating system from steam to hot water. Process unit design was concentrated on the preparation of design criteria for the Ball 3-X System, horizontal rod system, vertical rod system, process tube assembly, "ink" system, thermal shield, biological shield, process piping, downcomer, and moderator. On the basis of completed drawings, design of the reactor process unit advanced 4.5% during April to 11.5%. The 105 Building design was 17.5% complete at the month's end, an increase of 7.5%.

Design of the 100-C Area Facilities (Project CG-431-B) is essentially complete. Detail design for the Metal Examination Facilities is on schedule.

Design work has been completed on all firm items for "DR" and "H" Reactor rear face modifications (C-482). Studies and tests are being made in an effort to improve rear face pigtail design.

#### PROJECT SECTION

Major projects advanced during the month and attained construction completion status as follows: CG-349, Hot Semiworks, 90%; CG-361, Metal Conversion Facilities, 100%; CG-362, Waste Metal Recovery (TBP), 86.3%; CG-413, Expansion of 234-5 Facilities, 99%; CG-431-A, 100-C Waterworks Facility, 62.3%; CG-431-B, New Production Facility, 61.5%; CG-438, Ball Third Safety





#### Engineering Department



System, 5%; CG-418, Additional Waste Storage Facilities, 100%.

Construction returned to a five-day work week on April 14. The teamsters remained on the job all month despite the failure of the National Joint Board for Settlement of Jurisdictional Disputes to adjudicate the local dispute between teamsters and plumbers. A jurisdictional dispute between millwrights and plumbers delayed one phase of work on TEP for four days. The craftsmen involved were assigned to other phases of the Hanford Works construction program during this period.

Eleven new jobs with an estimated total cost of \$33,000 were assigned to Minor Construction during the month. Pertions of Projects CG-423, Additional Waste Evaporation Facilities - 200-E, and CG-474, Relocation of Exponential Facilities, were assigned to the Unit.

Seventy-three project items and ll informal requests, totaling \$17,953,000, were active in Project Engineering.

All field work on Project AEC-010, covering the survey and subdivision of Richland, was completed.

Approximately 95% of the concrete required on the 100-C Waterworks (CG-431-A) has been poured. All related construction is progressing satisfactorily except erection of steel by the subcontractor on the 187-C High Tanks. Erection of the graphite reactor (CG-431-B) was started on April 15 and completed on April 26. This installation of 127,000 pieces was accomplished in slightly less than 30 shifts time. The greatest deviation at any one point from calculated graphite elevation was ten mils. Installation of process tubes was completed April 26, and the unit was accepted by Pile Technology from a reactivity standpoint April 28. Installation of the top thermal shield and leading-in of cooling tubes is complete. The steel supporting structures for the top biological shield is being erected.

Expansion of the 234-5 Facilities, Project CG-413, was advanced to 99% completion, 2% ahead of schedule. Installation and testing of the RMB line was completed. Construction on TBP (CG-362) was advanced 4.1%, a gain of 2.2% in the schedule lag. The Project Section reassumed responsibility for field work on all phases of TBP on April 22.

#### GENERAL

#### Organization & Personnel

Total on Roll April 1, 1952	1,626
Accessions	71
Separations	101
Total on Roll April 30, 1952	1,596

J. S. Parker, Assistant Manager of the Project Section, transferred to the Aircraft Gas Turbine Division at Lockland, Ohio, on April 30.



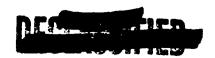


An Applied Research Unit was established in the Technical Section on April 1. F. W. Albaugh was appointed Manager. This Unit has responsibility for the basic and pioneering studies in physics, metallurgy and chemistry which were formerly carried out by the Pile Technology and Separations Technology Units as a part of their broad process technology responsibilities. Physics and Metallurgy personnel were transferred from Pile Technology to the Applied Research Unit and it is planned to transfer Chemical Research activity of Separations Technology later in the year. For the present, both analytical research and analytical service work have been assigned to the Applied Research Unit, including analytical control functions now being carried out in support of Manufacturing operations which are to be transferred to the Manufacturing Department at a later date.

A. D. GRENINGER, MANAGE ENGINEERING DEPARTMENT

DECLASSIFIED





#### PILE TECHNOLOGY UNIT

APRIL, 1952

May 10, 1952



#### VISITORS AND BUSINESS TRIPS

Visitor	Date	Address	Purpose
R. M. Edwards J. E. Brown, Jr.	4-28/30-52	General Engr. Laboratory	Consultation on C Basin viewing facility design
Gordon M. Steele Warren K. McCarty	4-21/24-52	North American Aviation Company	Discussion of in-pile experiments
E. L. Knoedler H. R. Feldman A. J. Curtis	4-4-52	S. T. Powell Co. Chas. T. Main	Observe experimental work
H. H. Hænsner	4-14/16-52	Sylvania Electric Products	Discussion on production problems
Charles George	4-11-52	General Engr. Laboratory	Discussion on develop- ment projects
Name	Date	Place Visited	Purpose
E. A. Smith	4-15/16-52	Campbell Avenue Site General Engr. Lab.	Inspect progress of canning mechanization
	4-17-52	KAPL	Discuss canning problems
	4-18-52	ANL	Discuss canning problems
E. A. Eschbach	4-28-52	Ames Laboratory	Consultations on canning problems
	4-29-52	Battelle Memorial Institute	Consultations on canning problems
•	4-30-52	KAPL	Consultations on canning problems
W. J. Ozeroff	4-7-52	Pajarito Site	Discussion of critical mass problems
·	4-9-52	Los Alamos, New Mexico	Discussion of critical mass problems
H. A. Johnson	4-28/30-52	Atlantic City, New Jersey	Attend the American Foundrymen's Convention
S. S. Jones	4-29/30-52	Bremerton Navy Yard	Consultation on machining





#### SHIELDING STUDIES

#### Attenuation Studies

Experiments are now in progress to determine the cadmium ratios and the five ev neutron flux distribution in both the Brookhaven type concrete and iron-masonite shields. Earlier data describing the distribution of gamma rays through a Brookhaven type concrete shield have been confirmed.

#### Detection of Voids in a Concrete Crate Assembly

A gamma source and G. M. detector are being used to study the uniformity of the distribution of the aggregate of Brookhaven concrete placed in an experimental mock-up of a portion of the front face of a pile. The source and detector are moved through adjacent vertical and horizontal "B" sleeves by means of a "U" type frame holding them. With this system a variation of approximately one-eighthinch in the thickness of the aggregate can be detected. However, it will be impossible to distinguish between voids occasioned by the absence of the grout (for the crate poured by the Prepakt Process) and non-uniformity in the distribution of the aggregate.

#### Radiation Damage Studies

Additional exposures of both masonite and Brookhaven concrete have been made. Additional Brookhaven concrete samples are being prepared for exposure. Recent data indicate that the rate with which masonite is deteriorated in a given flux may depend upon the exterior pressure applied to the material during exposure. Studies of this possible effect are continuing.

#### Shielding Effectiveness of Gun Barrels

The shielding effectiveness of gun barrels of various designs are being determined experimentally in support of future pile design as well as to check independent calculations. The "standard" for this series of measurements, a ring and doughnut assembly equivalent to that in existing piles, is now being tested in the A test facility at the D File. Very high backgrounds make the measurement difficult.

#### OPERATIONAL PILE PHYSICS

#### Pile Enrichment Studies

An investment of up to ten kilograms of  $\mathbb{U}^{235}$ , enriched to an isotopic purity of about 93 per cent, is planned for the C Pile. Of the ten kilograms, a maximum of six will compensate for the reactivity invested in the larger water annulus, with the remainder being utilized to increase plutonium production rates by providing the reactivity required to increase the flattened pile volume.

Calculations have been completed which show the increase in number of units of plutonium which can be produced at the C Pile per unit of  $U^{235}$  invested in the form of enrichment as well as per unit depleted, as a function of total  $U^{235}$ 



investment and as a function of specific tube power. In addition, the power levels to be expected at C Pile have been determined for a range of possible operating conditions, i.e., quantity of emrichment invested, various specific tube powers, and long term gains status.

A complete report on this work is now being prepared.

#### Enrichment Experiment - Single Channel - PT-105-502-A

It was previously reported that uranium-aluminum alloy slugs containing four and one-eighth per cent by weight of uranium euriched to 93 per cent purity in the U<sup>235</sup> isotope generated 94 per cent as much heat per unit length as natural uranium when exposed in a given neutron flux. This value was based on power generation measurements made on tube 0674-H which contains fifteen eight-inch pieces enriched as above and centered in the tube with natural uranium. Recent data show that the water flow through this tube is greater than the surrounding regular metal tubes - presumably because of the slight decrease in the diameter of the enriched pieces resulting from the unbonded canning operation. The revised power generation rates, incorporating the flow correction, show that the enriched alloy produces heat at the same rate as highly exposed natural uranium. Details of this experiment are reported in an interim report, "Fringe Tube Enrichment," HW-23825.

#### Reactivity-Cycle Damping

Serious reactivity losses can be expected at the C Pile following the initial metal discharge if efforts are not made to distribute the tubes to be discharged over the pile insofar as possible. A joint investigation with Reactor Section personnel is being undertaken to determine the range in tube exposures which would initially need to be accepted if a schedule of metal discharges of equal reactivity weight were established.

#### C Pile Reactivity Status

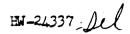
A weighted average dih of 0.936 inhours was determined for the C-Pile graphite from test pile reactivity data obtained during the functional graphite testing program and actual assignment of heats to C Pile zones. This value is equivalent to the reported value for the H Pile.

#### C Pile Startup Considerations

The planning of the C Pile startup and associated experiments is in progress. The following major experiments are under consideration:

- 1. A determination of the reactivity effect of water in the process tubes.
- 2. The reactivity effect of air in the pile and a measurement of the rate of air displacement by a carbon dioxide atmosphere, and
- 3. Several danger coefficient measurements including the effect of a water annulus around a control rod. A recommended sequence of







Pile Technology Unit

events during the startup has been formulated and presented to the startup committee for consideration.

#### Neutron Diffusion Length Measurement - C Pile

The neutron diffusion length in the C Pile graphite has been measured. The measurement included a total of 235 independent diffusion lengths which yield information on 80 per cent of the power producing volume in a pile with 450 inhours of radial flattening. No evidence of either gross or local contamination was found. The data appear to be internally consistent in all respects and a least squares calculation of each of the independent diffusion lengths is in progress at present.

#### Ruptured Slug Detection

Two uranyl nitrate injection tests were made during the month in an attempt to establish experimentally the relative sensitivities between several methods of detecting the presence of fission products in the effluent water. In these tests uranyl nitrate was injected into one process tube to simulate a rupture and an effluent water sample conducted to the sample room via a line attached to the appropriate cross-header. An attempt was made to determine the relative sensitivities of a delayed neutron detector, gamma spectrometer, and beta ionization chamber by using each of these systems to monitor simultaneously the fission products in the single water source.

The sensitivity of the delayed neutron detector was encouraging. It was also demonstrated that this detector performs satisfactorily when mounted in the sample room rather than on the rear face; a feature which would greatly facilitate maintenance. The gamma ray spectrometer gave positive indication of fission product and development of this technique will be continued. The beta ionization chamber proved the least sensitive in this test. It is believed that the sensitivity of all three detectors can be improved and efforts in this direction will continue.

#### Gamma Ray Spectrometer - Foil Counting

The statistics on counting gamma emitting foils with low disintegration rates can be improved by utilizing the high efficiency associated with crystal detectors. Efforts to reduce the background counting rate, which also increases, through differential pulse height selection are continuing.

#### Automatic Tube Temperature Recording Facilities

The DR Pile automatic tube outlet water temperature recording equipment operated with a minimum of difficulty during the month. Good data coverage was maintained.

The Flexowriter recorder is progressing well in advance of schedule. All offsite procurement is complete. Equipment fabrication on site is 90 per cent complete and the installation itself is 70 per cent complete. The expected completion date is May 30.





Several measurements supplementing the calibration work already completed are in progress. A measurement of the ratio of the flux at the slug surface to the average flux in the slug is being planned. A measurement of the pile temperature coefficient is underway.

#### GRAPHITE STUDIES

#### Pile Graphite - F Pile Samples

X-ray studies of the graphite powder samples removed from six tubes at F Pile during March reveal striking symmetry of the  $C_{\rm O}$  crystal lattice spacing relative to the center of the tube. Channel exposures were from 90 to 400 MMD. This is in contradiction with observations made late in 1950. Observation of the peak shape obtained from each sample indicated a correlation of this shape with exposure. Despite higher exposure, the  $C_{\rm O}$  spacings in central tubes were considerably lower than those observed late in 1950.

Results of the graphite channel and process tube diameter traverse made in March are being prepared for publication. Analysis of powder samples obtained at F Pile indicate that aluminum oxide monohydrate is the major non-graphitic constituent with traces of iron and sulphate and carbonate ion. The aluminum content of the samples from process channel 2058-F may be related to the apparent constriction of the channel diameter to dimensions less than the outside diameter of the process tube.

#### Pile Graphite - Thermal Conductivity

All available data on the thermal conductivity of pile graphite has been summarized and will be issued as document HW-2/174, entitled \*Pile Graphite Thermal Conductivity.\*

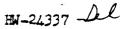
#### Stored Energy Studies

The stored energy release spectrum of graphitic oxides prepared by treating graphite with concentrated nitric acid and potassium chlorate was shown to be similar to the stored energy release spectrum of graphite with a low exposure in a cold test hole. X-ray study of the graphitic oxide indicates that the Co spacing was approximately 10 Å.

#### Annealing

Oven annealing experiments are being completed on a series of CSF graphites. These experiments show promise of characterizing the annealing regions below 1100°C. A knowledge of annealing regions is useful in investigating mechanisms of damage release.





## DECLASSIFIED

Pile Technology Unit

Results from interferometric physical expansion annealing confirm that for a given sample, the temperature at which annealing begins is always higher than the temperature at which the sample was irradiated. Preliminary results indicate that the difference between the two temperatures increases with higher irradiation temperature.

#### Surface Studies

Samples have been prepared which will be used in determining surface changes caused by irradiation of graphites in different gaseous atmospheres. The study of the effect of different outgassing temperatures on surface characteristics has continued. Crude calculations have been made concerning the water adsorbed on graphite for different relative pressures.

#### Special Graphites

Samples from additional types of graphite prepared by Battelle Memorial Institute and additional samples of TS graphite produced by the National Carbon Company were examined as to physical properties and were charged into the D test hole at the DR Pile. Papoose irradiations of Battelle graphites and capsule irradiations of TS graphites were continued.

#### Study of Gas Graphite Reaction - PT-105-504-E

Carbon monoxide, carbon dioxide and graphite will be exposed in sealed quartz capsules at low temperature in tube 0776-H. The special annulus tube equipment has been re-designed because of leaks, and has been tested at 400 psi. Installation will be made at the earliest opportunity.

#### In-Pile Measurement of Electrical Resistivity of Graphite

Revisions to the construction of the apparatus for this in-pile experiment have been suggested to the Graphite Development group. Present plans call for placing the assembly in a wet process tube using a gas-pressurized slug and a special nozzle.

#### Controlled Temperature Exposure of Graphite - PT-105-403-P

Four pairs of specimens in sample series No. 4, charged at the B Pile February 6, are being irradiated at various intermediate temperatures. Temperature control is quite unsatisfactory in the present experiment, as indicated by the following data obtained:

1	2	3	4 (Control)
98	115	- 98	135
110		120 140	135 135
	98 110 133		110 130 120





No immediate explanation for this trend is entirely satisfactory. Instruments have been checked and calibrated. The control point will be changed temporarily to another thermocouple to verify the accuracy of the one presently used.

#### Controlled Gas Atmosphere Experiment - Project C-410

The installation of this equipment on the zero level of 105-DR for the study of the reactions between various gas mixtures and graphite in the center of the pile is reported to be 70 per cent complete. The various pieces of defective equipment are in the process of being replaced by the respective vendors.

#### HEAT STUDIES

#### Boiling Studies

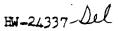
Calculations were made during the month to establish new boiling limits for tubes without downstream solid-dummy slugs. Replacement of these slugs with perforated dummies will decrease the pressure drop of a steam-water mixture flowing through the tube. This, in turn, will result in a larger permissible power for a given header pressure. A document reporting the new \( \Delta t \) is being prepared.

The investigation is being continued to develop suitable pile instrumentation to permit relaxation of the boiling limits and to increase pile operating safety. Two such systems are being considered at present. One consists of a mercury switchtube outlet temperature scanner which would permit temperature traverses to be made of each tube at two-second intervals, and would provide an alarm indication in case of excessive outlet water temperature. It is discussed in HW-23845, "Proposal for the Adoption of a Dual Monitoring System, \* March 24, 1952. A second system that is being considered consists of an additional pressure monitoring device such as a Panellit gauge mounted at the rear of each tube. In the event that boiling occurs in a tube, the pressure in the outlet nozzle will rise appreciably. A gauge to detect that pressure increase and cause the pile to be shutdown would thus partially eliminate the need for high header pressures. The possible tube flow conditions are being analyzed to determine whether or not the gauge could be expected to serve its purpose properly 100 per cent of the time. The use of such a pressure gauge mounted at the inlet to the tube is also being considered. In either case, it would serve to support the Panellit System and shut down the pile in the event the Panellit System failed to function.

#### Time Delay Relays

Additional operating experience was obtained from the time delay relays installed in the piles. During the month, no Panellit alarms were observed and no operational difficulties resulted from the use of the relays at the B Pile. In addition no shutdowns would have resulted if the Panellit alarm system had been on an instantaneous scram basis.





# DECLASSIFIED

Pile Technology Unit

No operational difficulties were encountered at the D ami DR Piles. However, a sixteen-minute shutdown resulted at the H Pile when the Panellit circuit was inadvertently opened. This occurred while an Instrument mechanic was testing a gauge. The shutdown was not occasioned by a malfunction of the time delay relay nor of the Panellit system.

At the F Pile, an authentic shutdown occurred on April 19, 1952. The shutdown resulted from a continuous high tube pressure which was caused by partial plugging of the outlet fittings of the tube. It is probable that a rubber gasket was left in the rear of the tube when the tube was previously checked for water leaks. The gasket evidently worked into a position where it partially blocked the water flow, causing a decrease in flow and the resultant shutdown. The time delay relay functioned effectively to shut down the pile before damage could occur within the tube.

#### Emergency Cooling

The study of the consequences of a pile cooling system failure which occurs at various time intervals before or after shutdown has been continued. The calculations are complicated by the fact that almost all the variables are functions of temperature and time. Analytical equations have been established, but they were so cumbersome that the aid of the Computing Section has been enlisted. The programming of the IBM has been completed, and results will be published periodically as they become available.

#### Experimental Slug Stress Studies

Assembly of the resistance heating equipment which is to be used for the experimental study of slug stresses has been almost completed. Preliminary tests have been planned to determine the actual capabilities of the equipment. It is anticipated that this testing will require on the order of two months.

#### Thermal Shield Temperatures

A production test to authorize experimental measurement of the temperatures in a thermal shield is being circulated for approval. The data to be obtained should provide sufficient information to establish a more accurate basis for the process specifications, and useful design data will be obtained.

#### C Pile Thermal Shields

In the construction of the side thermal shield of the C Pile, shims have been placed between some of the cast iron blocks in such fashion that some vertical rows of blocks will tend to expand as a unit when heated. An investigation was made to estimate the effect of such expansion on pile operating life. Possible rupture of the shield cooling tubes as well as dislocation of the rod and test hole openings were considered. However, it was concluded that the probability of serious consequences was not great enough to warrant a change in the manner in which the shield had been constructed.





#### C Pile Horizontal Rods

An investigation was made of the temperatures which may be encountered in the components of the C Pile horizontal control rods. It was found that the surface temperatures of the aluminum cans containing the boron might reach 50 or  $60^{\circ}$ C. Since the aluminum can is only 40 mils thick, the useful life of the rods may be limited to less than ten years due to corrosion.

The interior of the rod is annular in shape, and cooling water flow through a 40 mil annulus. If this annulus were to become plugged, the aluminum temperatures might approach 95°C. It was therefore recommended that screens be provided in the inlet—water line and that means be provided for purging the rods.

#### Ink Facility Temperatures

The proposed pile control mechanism using a ten per cent boron solution is being analyzed for maximum temperatures to determine the probable corrosion rate and life of the apparatus. This apparatus, through which is circulated the boron solution, is to be inserted in a process tube for additional pile control. It acts as a multiple-pass heat exchanger since the boron enters and leaves at the rear face. Essentially all of the cooling of the boron solution is done by process water since the external circuit is cooled only by natural connection. The formulae for the temperatures along the tube are being developed.

#### Measurement of Slug Operating Temperature - PT-105-411-A

Considerable difficulty has been experienced in machining a thermocouple slug to the desired specifications. Therefore, to obtain a slug for insertion in the D Pile at the earliest possible time, the design specifications have been relaxed, increasing the thermocouple well diameter from 0.076 inch to 0.1875 inch. This slug and the related equipment will be charged into the D Pile to measure the slug operating temperature, the effect of irradiation on the slug thermal conductivity and the heat generation and flow effects after pile shutdown.

The attempt to drill holes of surface thermocouples in uranium slugs at Schenectady was unsuccessful. The Puget Sound Naval Shippard has indicated their belief that they can accomplish the desired results. This is being investigated.

The assembly for in-pile calibration of thermocouples is essentially complete except for the original calibration of the thermocouples.

#### WATER STUDIES

#### 105-D Flow Laboratory

Preliminary results have been obtained from the initial pH tests completed during the month. In general, weight loss measurements confirm the literature data on decreasing aluminum corrosion with decreasing pH in the range 8.0 - 6.0. However, frequency and severity of pitting attack followed an opposite trend. This



Pile Technology Unit

pitting did not appear until 1000 hours or more of exposure. In view of this information, a few-tube pile test is deemed necessary to further evaluate lowering process water pH.

The iron piping systems in the flow laboratory were inspected following completion of the first series of tests. Severe damage was found at the lower pH values, especially at high temperatures. The heat exchanger tubes showed pitting attack and heavy scale formation. The system containing the lowest pH, 6.2, required cleaning with hot oxalic acid before being returned to service.

A series of tests has been started to evaluate the effect of chloride ion concentration on corrosion and film formation. Because of limited chemical addition facilities, tube and slug tests are being supplemented by coupon tests.

#### Film Studies

Three of the four initial operational runs using the film formation apparatus have been completed and the fourth run is now in progress. It is anticipated that this project will be completed during the coming month.

Several techniques are being developed in order to study film particles with the aid of the electron microscope. An apparatus was constructed to enable direct deposition of film on the microscope screens under water. Also, procedures are being worked out to provide a dust-free atmosphere for sample preparation.

Statistical correlations were obtained among the variables total solids, iron, and manganese in the cotton plug analyses from various areas. A significant fact observed is that effluent cotton plug iron is less than influent cotton plug iron by an amount on the order of the iron retained as film in the tubes.

#### Alum-Activated Silica Test

The alum-activated silica production test operated satisfactorily during the month. Filtering rates were maintained at 4.45 gpm/sq. ft. at all times, and it was found possible to reduce the settling time from 1.8 to 1.4 hours. Coagulant dosages at present are 12 ppm alum and 4 ppm silica; other areas required 18 ppm of ferric sulfate during part of the month.

Increased Mn<sup>56</sup> activity was observed in the 107 Retention Basin effluent. Attempts were made to reduce this element by increasing chlorine addition; no decrease was noted after four days operation. Attempts were made to coagulate at pH 7.7; however, poor coagulation was obtained above 7.6, and iron breakthrough was encountered. Further attempts are being made to reduce manganese concentration.



فتدري سيشتمن أتياس

مادوه المستورة والمرام ما مايات الله

A twenty-six day test of the industion heater with dichromate-free water was completed April L. 1952. The data obtained are shown in Table I.

#### TABLE I

#### SECURITY OF PRIMERED WATER INDUSTION HEATER TEST

Sing Pastoning	Surface	Tamperature Difference, OC	Corresion Rate mg/cm <sup>2</sup> /day
Center of U il Edge of Coil Wostman of Coil	33 20	22 10 0	0.00013 0.0003 0.0000

Several minute puts were noticed on the hottest slug but not on the others. A heat exchanger has been installed and a high temperature test is underway.

The test to obtain corrosion rates of 25 aluminum jackets in pile cooling water at high temperatures was completed concurrently with the removal of sodium dicurrentate from the water. Weight loss measurements are being made.

After thirty days operation the flow laboratory tube being operated at 34 gpm was discharged. Negligible weight losses occurred during this period, indicating little or no abrasion at this high flow rate.

The flow laboratory test of alum-coagulated water was completed after 1286 hours of operation. Corrosion rates were observed ranging from 0.004 mg/cm²/day at 29°0 to 0.025 mg/cm²/day at 90°C. The corrosion data are more fully presented in a section of HW+24009 "Interim Report No. 1, PT-105-503-E, Use of Activated Silica as a Scagulation Aid for Aluminum Sulfate," W.C.A. woods, April 7, 1952. Weights of film to the slug: ranged from 0.062 grams/slug at 29° to 0.217 grams/slug at 90°C.

#### Tube Corrosion

The front tube corresion mock-up is now operating for its first test. Dishremate free water at three pH's and water containing sodium silicate are being tested. A motion picture borescope is being used to permanently record the condition of the tubes. The Probolog, an electronic tube testing device has been purchased, and is being tested for application to process tubes.





Pile Technology Unit

Because of the elimination of sedium dichromate addition, the weighted tube mockup was shut down, and the tubes are being examined. A new test of dichromatefree water will start immediately.

#### Recirculation

The second flow laboratory recirculation test was discharged after 490 hours of operation. In general the corrosion rates and the amount of film formed were less in this run, which was at 8.4 ppm total solids, than in the first one, which was made with steam condensate at 4.2 ppm. The additional solids were obtained by adding a known amount of filtered water. A third run, at 16 ppm total solids, is now underway.

HW-24106, "Production Test No. 105-506-E, Recirculation of Pile Cooling Water," is being circulated for approval. If approved, the test will begin at 100-H Area at the first shutdown after May 15, 1952. The first run will be made with steam condensate.

#### Correlation Studies

Measurements of the pH of Process Water subjected to different heating treatments show that changes in the pH occur upon heating the water. The data are shown in Table II (pH of water originally 7.69).

## TABLE II pH Changes As A Function Of Water Treatment

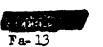
		Test Temp. OC	_Но_
1.	Water heated directly to test temperature then cooled at atmospheric pressure to 25°C.	135	7.93 7.87
2.	Water heated directly to test temperature, then cooled under 400 psig to 25°C.	128 73	7.52 7.68
3.	Water heated to 135°C and mixed with cold water to get test temperature, then cooled to 25°C at atmospheric pressure.	95 80	7.74 7.69

A special electrode is being ordered to study the pH of the water at high temperature and pressure.

#### MECHANICAL DEVELOPMENT STUDIES

#### Charging and Discharging Programs

Investigation of the slug cocking phenomenon is continuing. Two series of X-ray pictures were taken of slugs charged with a pressurized charging machine with flows





of 25 and 30 gpm. Souking was accented on every fifth slug, which may bear some relation to the fact that the slugs were charged in groups of five.

Arrangements are being made for lease of an X-ray machine from Industrial X-ray Engineers of Seattle. This machine is well suited to this work since it weighs only 85 pounds and is easily portable.

It is planned to make extensive studies of slugs charged with a standard charging machine under various conditions which exist during charging to try to detect any possibility of slugs being tocked in the piles. The use of transparent tubes as an aid in this program is also being considered.

#### Horizontal Control Rods

The full scale Horizontal Rod Mock-Up, Project C-468, has been completed except for minor modifications required to meet the acceptance test specifications. Functional testing under C Pile startup conditions is scheduled to be done immediately. Following these tests electrical operating data will be obtained with the aid of Electrical Maintenance. After the operational characteristics of the C Pile rod have been evaluated under ideal conditions, a study of operation under various conditions of graphite growth will be undertaken.

The gas seal developed for Horizontal Control Rods has operated satisfactorily from a mechanical standpoint but the use of water lubrication and graphite bearing blocks in contact with the aluminum rod results in a serious corrosion problem. To overcome this difficulty it will be necessary to substitute materials which do not form a corrosive combination.

Study and preliminary design is continuing on replacement rods for the present piles. Recent difficulties experienced by the Manufacturing Department with the present rods makes it even more apparent that considerable modifications are necessary; therefore, this work will be given highest priority.

#### Vertical Safety Rod and Third Safety Systems

Testing of the variable orifice for the C Pile shock struts has been completed except for final checking with an actual C Pile vertical rod. One of the C Pile rods has been received and is being installed in the test tower. A C Pile ball hopper and chute will also be installed and the final tests on these systems will be completed.

Testing is continuing to determine the optimum type of lubrication for the seals to be used with the Ball 3X. As reported in the past, silicone grease provides good lubrication and assists in making a gas tight seal but has the disadvantage of requiring occasional removal and re-application to prevent gumming. The dry lubricant, molybedemum sulfide, is being tested to determine if it will be more satisfactory than the grease. Indications are that if it is properly applied, it affords even better lubrication than the grease but may be somewhat difficult to insure that a proper amount is always present.





#### Rear Face Monitoring by Television

The television equipment was received during the month and has been set up in the 189-D Laboratory. The RCA Industrial TV equipment under study consists of a minature camera and a control monitor with a 10-inch screen. It is proposed to locate a control monitor in the control room and on the C elevator. The camera is remotely controlled from these monitors so that the persons viewing the operations can observe any particular portion of the rear face desired. This equipment is being installed on a mock-up to demonstrate its potentialities before installation on the rear face.

#### Process Tube Assembly Distortion Tests

The nine tube mock-up, in 305-A Building, is being used to evaluate the nature and maximum amount of distortion which can be tolerated before pile tubes must be abandoned. The study will include development of methods of alleviating this distortion so that tubes can be returned to service. A comprehensive study also is to be made of the economics of overhauling a pile when it no longer can be operated profitably due to loss of tubes.

#### METALLURGY OF URANIUM

#### Fabrication

The alpha-phase canning characteristics were determined for three slugs pressed from uranium powder and three slugs pressed from uranium hydride powder. Due to the greater surface reactivity of powder metal slugs, a shorter pickling time is desirable than for rolled slugs.

Pickling the metal hydride slugs revealed a network of small cracks on the slug surface and discontinuities in the welded junction between the two two-inch compacts. The surfaces wetted satisfactorily in the Al-Si bath except in the region of the cracks. The hydride slugs were not canned but were sent back to Sylvania for further investigation of the discontinuities and cracks.

The three uranium metal powder compact slugs had good wetting characteristics and were canned. The uranium to Al-Si to can bond was satisfactory except for a few spots, with a peppery appearance, which are thought to be caused by oxide at the lead to Al-Si interface in the canning bath. It was concluded that alpha canning is feasible for powder metal slugs; all fifty slugs are to be canned and irradiated.

#### Heat Treatment

The pre-exposure evaluation of the four tons of production rolled uranium rods was completed. These rods had been beta-phase heat treated at Lackawanna, New York, by quenching from salt to water. Two independent tests showed that each of the rods was completely transformed. One hundred seventy-six slugs, machined from these rods, were canned in a preliminary determination of the optimum conditions for alpha-dip canning. Satisfactory slug to can bonds were obtained.





#### Transim Red Quality

Tests on samples from the production rods rolled in February indicate a structure different than in rods rolled previously. The micro-structure consisted of almost completely recrystallized grains, and X-ray results indicate a nearly random orientation. Tensile tests showed an increase in ductility and a decrease in yield strength for the February rods relative to uranium rolled previously.

#### METALLURGY OF HANFORD STRUCTURAL MATERIALS

#### Tube Fabrication

A prototype Uniscan unit for tube fabrication by drastic reduction of wall thickness in a single pass was completed and tested on a number of metals. 2S aluminum was readily worked in reductions up to 85 per cent. Mild steel works very well, and uniform reductions of 70 per cent to 80 per cent are easily obtained. Tests with zirconium were slightly less spectacular, although reductions of about 50 per cent were effected.

#### Fuel Slugs

Ninety-seven corroded slugs received from the canning area were examined. Nine types of superficial blemishes were found, some of which may be of common origin. About 30 per cent of the slugs examined contained white spots of corrosion product, and about 50 per cent contained localized bright areas or minute pits surrounded by bright areas. The entire batch of examined slugs will be exposed to hot, flowing process water in order to determine which of the nine types of surface defects develop into seriously corroded spots.

The development and evaluation of etchants and cleaners for jacketed slugs were continued.

Because of the detection of mercury in the autoclave condensate, a comprehensive survey of mercury contamination in the canning area was suggested. Using a G. E. atmospheric mercury detector appreciable readings were found in the welding booths.

The significance of the observed mercury concentrations as a factor in the corrosion of aluminum will be studied.

#### Anodizing of Aluminum

Temporary facilities for the anodization of aluminum jackets and process tubes have been installed. Firm, adherent coatings have been obtained. Techniques have been established for the production of anodic coatings of prescribed thickness.





#### Aluminum - Graphite Couple

As a result of problems arising in the operation of wet piles, a limited laboratory study of the wet aluminum-graphite couple has been undertaken. The corresion product formed at the aluminum-graphite interface was found by X-ray analysis to consist principally of  $\propto Al_2O_3$ . H<sub>2</sub>O. Spectrochemical analysis revealed the presence of small concentrations of other elements, undoubtedly adsorbed from the process water. No quantitative estimate of the concentrations of such minor constituents is yet available. The mechanical strength of the cementing bond of  $\propto Al_2O_3$ . H<sub>2</sub>O is under investigation, but reproducible results have not yet been obtained.

#### 200 Area Corrosion Problems

The routine study of the effects of process solutions upon various metals and alloys is continuing.

#### Miscellaneous Laboratory Studies

The solution potentials of a number of metals and alloys have been rechecked under more precise conditions. Techniques for the detection of local anodic and cathodic spots on jacketed slugs are being developed. The application of laboratory data to current corrosion problems is under investigation.

#### Examination of Process Tubes from F Pile

The examination of discharged tubes from F Pile is continuing. Emphasis is being placed upon identification of the corrosion products, and upon the determination of the extent of pitting and other corrosion effects.

#### Slug Examination

Slug examination by this group was started about the middle of the month. Preliminary activities included familiarization with present activities and available facilities.

#### 100-C Slug Examination Facility

Structural drawings are essentially completed for the new 100-C Slug Examination Facility. A final list of equipment is being compiled and feasibility studies are in progress. It is anticipated that a large number of slugs will be examined in this new facility in order to produce useful engineering data.

#### 108-B Irradiated Materials Examination Facility

A tentative process tube examination program has been outlined, and studies are being made to determine what alterations are necessary in order to adapt the existing P-10 metallurgical facility in the 108-B Building for this work.



#### Pile Technology Unit



CAINING DEVELOPMENT

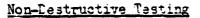
#### Can Wall Thickness and Warp of Eight-Inch Slugs

Statistical analysis of the penetration data on the 8.4-inch slugs confirmed months indications that from a penetration standpoint, little or no improver over four-inch slugs has resulted from the use of 8.4-inch slugs in heavy well cans. The average minimum can thicknesses are about 25 mils and 22 mils for \$8.4-inch and the 4-inch slugs, respectively. About one per cent of each will have penetrations to about fifteen mils from the can surface, but the dispersit of the data indicates that a greater percentage of the longer slugs will have mum can wall thicknesses of less than fifteen mils.

The mechanism which produces the normal variation in wall thickness is not the cause of the autoclave failures which arise from the can wall penetration. It suspected that warping of the slug is a major cause of the very deep penetral which have been noted on the 8.4-inch autoclave failures. Some variables, including warp, are being studied in order to eliminate this type of autoclave in

#### Compound Layer Investigation

A series of photomicrographs showing the compound layer formation on standard triple—dipped slugs has been completed. Preliminary study indicated that standard machining practice results in a wide variety of surface contours, that the fit compound layer on the canned slug appears to consist of four distinct layers, and that the compound layer is not continuous, in some instances being missing for distances as great as 0.1 inches. Efforts are being made to determine the composition of each layer.



Tests at the Hanford Works confirmed an observation by personnel at the New York Operations Office of the Atomic Energy Commission that unusual ultrasonic absorption versus frequency patterns were noted at 90° intervals around the periphery of bare alpha-rolled slugs. The absorption patterns correlate well with the rolling and heat treatment history of the metal, although no rigorous explanation of the effect has been attempted. Preliminary indications are that this phenomenon may lead to a readily applicable test for preferred orientation.

#### Destructive Testing

Plans were established and some equipment was designed and built to provide facilities for destructive testing of slugs. The objectives of the destructive testing program are to support the non-destructive testing program and to attempt to establish correlations between the pile behavior and the characteristics of slugs, canned by different processes, exhibited during non-destructive testing.

#### Bonding Layers

A literature survey of new candidate schemes of slug jacketing is being made. The data will be utilized particularly for study of the properties of possible intermediate layers between the uranium and the outer jacket.

#### Warm Press Canning

A small number of uranium slugs with Al-Si coatings prepared by two experimental techniques were warm press canned. The resultant canned pieces possessed bonding layers of the most uniform thickness yet observed in warm press canned slugs. Considerable air entrapment was observed in the slugs produced by the first Al-Si coating technique; the slugs coated by casting Al-Si about the uranium prior to warm press canning have not yet been evaluated.

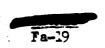
#### New Canning Methods

Work was continued on calculations for establishing criteria for slugs which may be required for future Hanford pile operations. In anticipation of a very extensive slug testing program, the procedure for preparing and securing authorization to conduct production tests is being centralized and simplified where possible. Work on determination of bond strengths was continued.

#### IRRADIATION ENGINEERING

#### High Pressure Water Channel - ANL-M-140

The behavior of water, prototype fuel, and structural materials is being investigated under conditions simulating those of the Shipboard Thermal Reactor as closely as is possible in the Hanford Piles. Operation during April was routine on process water. During this time, work has progressed on replacing the surge tank and general reconditioning of the system.





Pile Technology Unit



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#### Gamma Irradiation of Non-Metallic Materials - PT-105-246-P

Non-metallic materials are being irradiated in special underwater baskets and in racks on slug storage buckets by the fission product gammas from pile irradiated uranium pieces. The metal was changed on April 19 and all samples received from the General Engineering Laboratory are now under irradiation. Five samples that had completed their exposure of 9 x  $10^{\circ}$ R were shipped to Sehenectady for examination.

#### Plant Assistance Gamma Irradiation Experiments

Assistance was given Separations Technology personnel in running an experiment to determine the breakdown of carbon tetrachloride in intense gamma radiation.

A test of pH meter electrodes made for the Applied Research Unit showed no change in operation in a high gamma field.

#### Fission Chamber Life Test, DFW-M-101 - PT-105-528-SR

Neutron flux monitoring chambers designed for the Savannah River Works are being tested under pile irradiation. One chamber failed after an exposure of  $9.3 \times 10^{18}$  Nvt. The second is operating satisfactorily.

#### Creep Rate of Fuel Pins KAPI-M-105 - PT-105-400-P

The KAPL creep test is designed to determine the effect of neutron flux on the creep rate of small diameter stainless steel tubes with high internal pressure. No significant amount of creep has taken place since charging, possibly due to loss of stress-pressure originally sealed within the pines. Another creep slug of almost identical construction will be shipped to Hanford by early May.

#### Thermal Conductivity of U-Zr Alloys. ANL-M-172 - PT-105-432-P

A continuous measurement of the thermal conductivity of a uranium-zirconium alloy is being made under pile irradiation. Performance is generally satisfactory; however, the slope of the fluxmeter calibration curve decreases with exposure unless the gas lines are purged daily.

#### Electrical Resistivity Measurements of CuaAu. WAPD-M-112 - PT-105-513-SR

The electrical resistivity of ordered and disordered copper - gold specimens is being investigated as a measure of the effect of pile radiation on lattice spacing. The resistivity of the ordered specimen has increased about five per cent during the past month.

#### Creep Rate of Zirconium WAPD-M-111 - PT-105-529-SR

The object of the Westinghouse creep test is to determine the effect of neutron flux on the creep rate of zirconium. During charging, the slug atmosphere pressure was lost which increased the stress from 16,000 to 20,000 psi and caused

the specimen to yield a few mils. This put the microformer into a less sensitive position. No creep was evidenced at 16,000 psi, hence the stressing pressure was increased to 26,000 psi. The output of the microformer is about one-half of that expected and the Westinghouse representative is attempting to locate the trouble.

Heater Test for Graphite Thermal Conductivity Determination, KAPI\_M-109 - PT-105-530-SR

The KAPI-M-109 test is designed to determine the life and in-pile variation of thermal and electrical conductivity of silica and alumina heater cements. The assembly was charged on April 2, and the silica heater developed an open circuit within a week. The second heater is performing satisfactorily.

#### SPECIAL IRRADIATIONS

#### Status of Special Requests

P-10-A pieces charged	0
P-10-A pieces recharged	105
P-10-A pieces discharged	85
P-10-A pieces reaching scheduled exposure	0
P-10-A pieces under irradiation	344
Thorium pieces charged	45
Thorium pieces discharged	20
Thorium pieces being irradiated	855
Special Requests samples charged	22
Special Requests samples discharged	9
Samples being irradiated	377
Samples shipped during April	206
Samples awaiting charing	150
Samples awaiting shipping	1

#### Sample Irradiation Facility Reactivation

The B test hole facility in the B Pile was successfully replaced on April 21, 1952.

#### PROCESS CONTROL AND ANALYSIS

#### Operating Limits

Pile power levels were governed by the following limits during April, 1952:

Pile	Limits Controlling Pile Power Level	
<b>B</b> .	Vapor binding, graphite temperature, and outlet water	temperature.
ם	Same as B	e deservice de la constant de la co
DR	Vapor binding	





#### Pile Technology Unit

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Pile	Limits Controlling Pile Power Level
F	Vapor binding and outlet water temperature
н	Vapor binding

Some increases in graphite lattice conductances were noted at B and D Files allowing higher local power generation rates.

#### Process Changes

On April 19, the addition of sodium dichromate to the pile process water was discontinued at B, D, DR, and H Piles. Similar action was taken at the F Pile on April 25. At the completion of the graphite burn-out test conducted under Production Test-105-435-P, a maximum allowable graphite temperature of 410°C was established for the F Pile.

#### Reactivity Status

A representative summary of the reactivity status of each of the operating piles during the last equilibrium period of the month is given below:

Pile	В	D	DR	F	H	Totals
Control Rod Excess (inhours) Xenon	170 687	163 694	102 699	164 687	190 712	
riant Assistance "B" Dummy cols. Hot Reactivity Co Allowance	10 120 19 1346 -378*	10 105 47 1370 -439	6 100 25 1126 -273	8 89 139 1350 -426	10 81 15 • 1286 -359*	44 495 245
Cold, Clean Reactivity	968	931	853∄	924	927	

<sup>\*</sup>Co value changed

#DR Pile is now at the bottom of its reactivity cycle.

#### Thorium Program

The in-pile inventory of 10-66 is slightly below 850 pieces; increases are expected in May. An estimate was made of the feasibility of furnishing an additional kilogram of product to be discharged in June. It appears that this would require about 0.9 tons of the present 1.5 ton loading.



Pile Technology Unit



HW-24337 Del

#### Ruptured Slug Data Correlation

A report was issued comparing the rupture incidence rate of Group 7 slugs with that of Group 8 slugs. A significant decrease in the rupture incidence was noted for Group 8 slugs.

#### Water Flow Tests

Flow rate tests utilizing the volumetric displacement of the 190 storage tanks as a standard have been performed at H Pile. Preparations are underway for similar tests at D and DR Piles.

#### Removal of Water from Pile Graphite

A survey was made of methods for removing water from the pile graphite and recommendations were made that the hot water recirculating equipment installed on the piles be tested to determine its efficiency in removing water. The recirculation equipment at H Pile is now being prepared for a test to determine the feasibility of using this equipment to remove water introduced by process tube leaks.

#### C Pile Construction

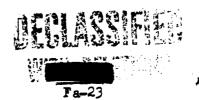
A flow-pressure characteristic curve and orifice pattern were recommended for the C Pile. Technical inspection was provided continuously for the graphite layup work at the C Pile. A total of 32 vacuum cleaner samples obtained during the C Pile graphite layup were tested with no suspicious results noted.

#### Slug Corrosion

An interim report was published on in-pile slug corrosion tests in which slug weight losses were correlated with calculated slug surface temperatures. Recommendations were made to revise current corrosion limits on pile operating levels. The new limits using dichromate free water are established on maximum tube powers and in general allow significantly higher tube powers than the current 80°C outlet temperature limits.

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

To date, 514 tubes at H Pile and 348 tubes at DR Pile have been charged with the heavy-walled eight-inch slugs.





#### Production Test-105-435-P - Graphite Burnout at High Temperatures

The in-pile phase of this production test was completed with the discharge of samples on April 8, 1952.

#### Test Pile

Regular uranium slug testing proceeded routinely during the month. Nine lots of Mallinckrodt billet eggs were inadvertently pickled before testing and yielded TDS values ranging from 13 to 16. Nine lots of Fernald billet eggs were tested prior to pickling and yielded TDS values ranging from 15 to 18.

Several special work requests - including preparation of suitable standards to be used in the calibration of the Savannah River tests pile for metal testing were satisfactorily completed.

#### INVENTIONS

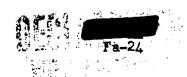
All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons 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	Subject
W. A. Clark M. V. Davis	Pile Control Improvement
R. W. Vivian	Valve Disk and Operator for use with Base of Skinner Valve Company - V-52280

Signed:

G. E. McCullough
Manager, Pile Technology

GEMcC:lm



## DECLASSIFIED .

May 8, 1952

#### SEPARATIONS TECHNOLOGY UNIT

### MONTHLY REPORT APRIL, 1952

#### VISITORS AND BUSINESS TRIPS

- C. M. Slansky, American Cyanamide Company visited Hanford April 7-9 to discuss special separations problems.
- G. W. Watt, Consultant, University of Texas visited here April 9-15 for research and development consultations.
- L. L. Zodtner, B. L. Kelchner and W. W. Corbin of Dow Chemical Company and H. A. Crapser of Austin Company, Cleveland, Ohio visited here to discuss pulse column design, operation, and instrumentation April 14-16.
- R. L. Dillon and A. S. Wilson visited Oak Ridge National Laboratory March 31 through April 1, 1952 and Argonne National Laboratory April 2-3 for consultations on solvent extraction.
- J. B. Work visited Oak Ridge National Laboratory, X-10, April 7-9 for technical consultations and to attend a waste process meeting. He also visited K-25 for consultations on Hanford  $\rm UO_2$  April 9-10.
- R. W. Benoliel visited Los Alamos Scientific Laboratory April 7-10 for technical discussions on 234-5 technology and nuclear safety.



#### Separations Technology Unit

- V. R. Cooper visited the University of California Radiation Laboratory April 3-4 for discussions on heavy isotope recovery. He visited Los Alamos Scientific Laboratory April 7-8 for technical discussions on 234-5 technology and nuclear safety. On April 9 he visited the Rocky Flats Plant of Dow Chemical Company for metal purification and fabrication consultations.
- G. W. Pomeroy visited Oak Ridge National Laboratory April 12-15 and Knolls Atomic Power Laboratory April 16-17 for interviews.
- A. G. Blasewitz visited Los Alamos Scientific Laboratory April 28-29 for discussions on slag and crucible dissolution equipment.
- E. F. Kurtz visited Los Alamos Scientific Laboratory April 28-30 for discussions on slag and crucible dissolution equipment.
- A. M. Platt and R. E. Tomlinson visited Knolls Atomic Power Laboratory April 28-29 and Oak Ridge National Laboratory April 30 for purex consultations.

#### ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	March	April
Administration	5	. 5
Research	43	42
Chemical Development	85	88
Process	#5	· <u>41</u>
	175	176

Research: One Tech. Grad. was transferred from Employee and Public Relations and one Metallurgical Engineer was transferred to Process. One Asst. Program Head was transferred to Applied Research.

<u>Development</u>: One Chemical Engineer was added as a new hire, and one Chemical Engineer was terminated. Two Tech. Grads. were transferred from Pile Tech. and one Tech. Grad. was transferred from Manufacturing-Separations. One Tech. Grad. was transferred to Process and one Steno-Typist B was transferred from Utilities and General Services.

Process: One Metallurgical Engineer was transferred from Research and one Tech. Grad. was transferred from Development. One Metallurgical Engineer was transferred to Applied Research and one Metallurgical Engineer was terminated. One Tech. Grad. was transferred to Manufacturing-Operations.





## BIPOL PLANT ASSISTANCE

# DECLASSIFIED

## Canyon Buildings - 221

Coating Removal Off-gas - B and T Plants - The off-gas from coating removal has by-passed the Fiberglas filter since installation of the silver reactors except for a test in 4-5L at B Plant. As a result of the test, the coating removal off-gas will be sent through the filters, starting with dissolver charges B-12-04-Bd-4, 5 and 6 at B Plant and T-12-04-Fd-22, 23 and 24 at T Plant.

First Cycle Product Precipitation Rework - T Plant - The 17-3WS of Run T-12-03-F-70 was reworked from 2.74 per cent to 0.74 per cent which was discarded. The high waste was caused by an overflow of the centrifuge bowl during cake removal due to a faulty centrifuge manometer.

## Concentration Buildings - 224

Master Recycle Rums - B and T Plants - Twenty master recycle rums were made during the month at B Plant and one at T Plant. The average total waste loss was 0.48 per cent for these rums. No process difficulties were encountered with the master recycle rums.

Waste Evaporator - B and T Plants - A hot water flush of the B Plant waste evaporator of twenty-four hours duration increased instantaneous rate from 460 gal/hr to 709 gal/hr and reduced the sludge volume from 1280 gallons to 980 gallons. The efficiency of this flush compares favorably with that of citric and nitric acid flushes. In subsequent operation the rate dropped to 580 gal/hr where it has stabilized. The T Plant evaporator operated routinely with an evaporator rate of approximately 700 gal/hr. The log beta decontamination factors and bulk reduction at both plants were approximately 4.0 and 75 per cent respectively.

#### Isolation Building

Production Test 231-14 - Evaluation of Use of Filter Boats - Nineteen S Plant runs have been processed through one peroxide cycle and one plutonium (IV) oxalate cycle with the oxalate precipitate filtered into "Filter Boats" and transferred to the Purification Building as the precipitate under Production Test 231-14. Spectrochemical analyses for Al, Cr, Fe, Na and Ni, made on buttons produced from twelve of these runs indicated satisfactory purity (Al - less than 20 ppm, Cr - less than 50 ppm, Fe - 325 ppm, Na - less than 80 ppm, Ni - less than 2000 ppm). The c/q summation for nine of these runs ranged from 0.9210 to 1.1176 average and the reduction yield ranged from 80.2 to 97.8 per cent. The reduction yield data are not comparable to those of control runs however, since these runs were processed under Production Test 235-5, using sulfur as a booster charge. No processing difficulty was





encountered in the Isolation Building. Filtrates from the oxalate precipitations contained 0.6 per cent of an average run. Filtration times for the 12 to 15 liter slurry volume varied from 32 to 172 minutes.

Seventeen S Plant runs have been processed to filter boats with one plutonium (IV) oxalate cycle and no peroxide cycles. Spectrochemical analyses for Al, Cr. Fe. Na and Ni made on buttons produced from the first four of these runs indicate satisfactory purity (Al - less than 20 ppm, Cr - 2 to 10 ppm, Fe -270 ppm, Na - less than 10 ppm, Ni - 100 to 500 ppm). Some precipitation of the peroxide was observed upon addition of the hydrogen peroxide used to insure that the product is in the plutonium (IV) state. In order to alleviate this condition, the addition of 50 per cent hydrogen peroxide was reduced to 0.5 liters from 1.0 liters for the approximate 40 liter process volume. The acidity of the runs processed has varied from 0.7 N to 4.2 N and is expected to range to higher values due to test work at S Plant. Insufficient data are available at present to evaluate the effect of the acidity other than the fact that there is a greater tendency toward plutonium peroxide precipitation at the lower acid concentrations. The product content of the filtrate varied from 0.6 per cent to 11.4 per cent with an average of 4.1 per cent. Filtration times for the approximate 40 liter slurry volume varied from 37 to 465 minutes; most runs, however, filtered in 60 to 200 minutes.

B and T Plant runs are being processed to filter boats through two peroxide cycles and one plutonium (IV) oxalate cycle or to sample cans through two peroxide cycles as demand and availability of filter boats dictate.

Some difficulty in obtaining quantitative transfer of product from 231 to 234 in the filter boats is being experienced in that estimated receipts in the 234 Building are generally low. This is being investigated.

S Plant Runs - Filtration of Redox runs was discontinued during March. The appearance of sludge in the AT Tank, however, led to the decision to filter Redox runs through N-1 starting with Run S-2-3-L-59. The filtration time in Cell 2 increased from 30 to 190 minutes in the course of filtering eleven runs. A filter cleanout preceding Run S-2-4-2-3 decreased the time to 20 minutes, however the time increased to 140 minutes over ten runs. The filter time decreased to approximately 25 minutes following nitric acid flushes under oxidizing conditions and extensive backwashing. Subsequent operation has been uneventful. Filtration in Cell 3, starting with Run S-2-4-L-5, showed no abnormalities. It is possible that the material that plugged the filter was tricresyl phosphate, the tygon plasticizer.

Starting with Run S-2-3-L-40, the gamma activity of PR Cans received increased from 160 mr/hr maximum reading on this run to 1500 mr/hr and 2000 mr/hr maximum readings on Runs S-2-3-L-45 and 46, respectively. Following these runs, through Run S-2-4-L-3, the maximum readings ranged from 100 to





600 mr/hr. Current shipments, Runs S-2-4-L-64 through 73 are ranging from 16 mr/hr to 31 mr/hr. The highly radioactive solutions were processed through the Isolation Building with a resultant maximum sample can radioactivity of 180 mr/hr (partial loads of Runs S-2-3-L-44 and 46). An arbitrary limit of 50 mr/hr on sample cans was set for processing in the 234-5 Building. It was observed that the radioactivity readings increased during storage. It is likely that this was due to the settling of solids in the AT solution since most runs were not filtered during the period that these runs were processed.

Neutralization of B and T Plant Runs - Past practice has been to adjust B and T Plant runs to 1.8 - 2.2 N acidity with potassium hydroxide or nitric acid. Experience with sodium decontamination on Redox runs has led to the use of sodium hydroxide for adjustment of B and T Plant runs. This was initiated on April 16, 1952 with Runs B-12-03-D-46 and T-12-04-H-11.

N-1 Filter B and T Plant Runs - Leaches of the filter plate and filter aid in Cell 4 (processing B and T Plant Runs made on April 8, 1952) recovered approximately 177 per cent of an average run. No reason for this abnormally high hold-up has been determined. Seventy-three runs were processed through this filter preceding the cleanout. Investigation has revealed no abnormalities in Isolation or Concentration Buildings processing other than the fact that some runs were held as long as one week after load-out in 224 before processing in the 231 Building. A leach of the filter made on April 19, 1952 recovered 38 per cent. Frequent leaches are being scheduled to prevent a recurrence of the high hold-up.

#### PURIFICATION AND FABRICATION BUILDING PLANT ASSISTANCE

#### RG Line

Task I (Purification) - Impurity data on product solutions and resulting product from solutions originating in the Redox plant are being tabulated. P-1 and AT analyses are being included to complete impurity histories wherever possible. Data from (8) P-1, (27) AT and (36) DC-1 samples analyzed indicate that:

- 1. The separation factor for aluminum is approximately 140.
- 2. Separation factors for chromium are approximately 10 and 50 for peroxide and "plus three" oxalate precipitations respectively.
- 3. Lanthamum is removed by peroxide precipitation by a factor approximately 20.

Task III (Reduction) - Turnings were included in reduction charges again during April after a temporary discontinuance of this process step during March.





Turnings are being added to the bottom of reduction crucibles and the mixture of plutonium tetrafluoride, calcium and iodine is then added above the turnings.

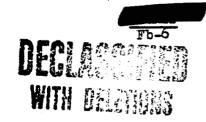
## RM Line

Task II (Dry Chemistry) - Of 47 batches processed through RMA Line Task II equipment during April (to 4-25-52) thirty-seven (37) required special handling procedures. These procedures were required because of one or more "off-standard" conditions existing during the process cycles. Cycle interruptions due to loss of vacuum in furnaces (occurred 24 times) and water-trap alarms and shut-downs (occurred 18 times) accounted for most of the off-standard conditions.

Starting with RMX-12-4-36 a dry-chemistry cycle was adopted which includes converting plutonium (IV) exalate to an exide at 600°C and weighing the exide. This procedure increases the dry chemistry cycle from ca. 7 hours to 13 hours. The exide weight does provide a reference weight, however, which is used as a basis for detecting fluorides which may contain sufficient water (from aspirators) to produce undesirable pressures and products in the reduction operation.

Task III (Reduction) - A pressure rise to 450 lbs/sq.in. occurred in a Task III furnace when processing fluoride material of normal appearance salvaged from a dry chemistry product processed in an Inconel boat. A water back-up had occurred during the dry chemistry operations for this batch and it is suspected that hydrates of Nickel fluoride and/or plutonium tetrafluoride were not destroyed during the subsequent drying operations. The water thus held would give rise to a higher than normal pressure in the reduction equipment.

Redox batches RMX-12-4-3, 27 and X-12-4-87 after hydrofluorination contained large quantities (estimated 20 per cent of runs) of a light green colored material. Analyses indicated normal impurities except for sodium (2500 ppm). This material was rehydrofluorinated with no change in weight or appearance. Trial reductions (10 g scale) were made in the Chemical Development Laboratory. Buttons were obtained but the slag appeared abnormally distributed on the sides of the crucibles and around the buttons. The plant material was transferred to the RG Line where double-sealed reduction bombs are used and the material reduced without difficulty. Yields of 98.3 and 98.9 per cent were obtained in RG line with fluoride material transferred from the RM Line.



## Miscellaneous

Production Test 235-5 (PuF Reductions with Calcium and Sulfur) - As of April 24, 1952, 52 RM Line reductions and 15 RG Line reductions had been completed in accordance with Production Test 235-5. Yields obtained have averaged:

- 1. RM Line reductions 88.9 per cent
- 2. RG Line reductions 96.8 per cent

Unfavorable conditions experienced during these reductions include:

- 1. The lower than normal yields reported above,
- 2. Refractory slags, and
- 3. Adherence of buttons to slag and/or crucibles.

The RG Line yields indicate that the process can be made to work acceptably though some yield improvement would be desirable. In an attempt to improve the yields and slag properties the amount of calcium used was varied from 25 to 75 per cent excess above stoichiometric requirements and quantities of sulfur were varied from 0.20 to 0.45 moles of sulfur per mole of plutonium. No yield or slag-property benefits were obtained. To determine the difference between the RM and RG Line yields the following variables have been investigated:



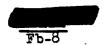


- 1. Degree of mixing of plutonium tetrafluoride, calcium and sulfur. Mixtures discharged to crucibles in the RM Line show a small degree of calcium segregation. Mixing completely by hand in the manner employed in the RG Line gave no improvement in yield.
- 2. RM Line mixtures were hand tamped with no improvement in yield.
- 3. Fluorides from the RM Line (from plutonium (IV) oxalates) were transferred to the RG Line for reduction and fluorides from the RG Line were mixed and reduced in the RM Line. An equivalent difference in yields as is shown by the difference in averages given above was obtained.
- 4. At month's end it has been determined that a 20 per cent increase in volume of a packed charge occurs in the RM Line equipment during evacuations for Argon purging. The conditions responsible for this will be corrected and the influence on yields determined.

Production Test 235-6 (Briquetting of Turnings for Recycle to Casting) - Six briquettes of turnings containing approximately 500 units each have been pressed. One briquette pressed with a force of 20 tons had a density indicating 44 per cent voids. Five briquettes made with a force of 50 tons had 20 to 25 per cent voids. Two castings were successfully made from these briquettes (Z-12-4-10F) and (Z-12-4-23F) with yields of 92.5 and 89 per cent. These castings were within the specifications applicable and were processed to completed units.

Production Test 234-1 Supplement C (Treatment of Concentrated Oxalate Supernatant to Permit Recycling) - The test provides for processing all of the remaining 128 lots of stored SN-3 material by a modification of the procedure found satisfactory in Supplements A and B of Production Test 234-1. Processing of the solutions will be started when an evaporator assembly is available.

Skull Dissolver - Equipment for the dissolution of the solid-waste material from the pouring operation is being installed in Room 221 of the 234-5 Building (Project C-422, Skull Dissolver). Due to the pyrophoric nature of the skull material and the possible ignition of the hydrogen evolved during dissolution, it has been recommended that facilities be installed to provide an inert atmosphere of either helium or argon in the hood and to permit a continuous inert purge of the dissolver system during dissolution. It has also been recommended that a thermocouple will be installed in the vapor line above the reflux condenser to facilitate control of the rate of vaporization. Upon completion of the hood, the operability of the equipment will be tested by performing a cold dissolution, employing copper as a stand-in for plutonium.





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#### REDOX PLANT ASSISTANCE

## Plant Performance

The Redox Plant operated at an 87 per cent time efficiency (IAF basis), and averaged 2.2 units of uranium per operating day during the month. Operations were normal, generally, with two brief instances where emulsion formation became apparent on IA Column. The condition was remedied in each case by flushing the column with water. The following is an overall summary of plant production performance:

#### Approximate

Tons of Uranium Processed Plutonium Produced (Batch Equivalents)	75.0 107.6
Per cent Uranium to Waste	1.1
Per cent Plutonium to Waste	1.3

## Operating Performance

Redox production was reestablished on March 28, at an average uranium processing rate of 2 units/day after a water flush was given to all extraction columns to remove emulsifying impurities. Operations were normal until April 3, when excessive quantities of plutonium appeared in the waste system. The appearance of the plutonium in the wastes resulted from an unexpectedly high boilup rate in the FR Cage facilities followed by transfer of the condensate containing plutonium to the waste cell. Recovery of the plutonium was accomplished successfully in the IS Column under acid-deficient flowsheet conditions. Waste losses from the IS Column indicated that better than 99 per cent of the plutonium in the feed was recovered.

Normal operation was resumed on April 5 and production rates increased to 3 units/day on April 8. During the period from April 8 to April 10, a gradual increase in the IA Column interface density accompanied by







increasing waste losses became apparent, indicating an emulsion build-up characteristic of March operation. The uranium extraction cycles were given a water flush to remove emulsion-forming impurities and operations were restored at a 3 unit/day processing rate on April II. Coincident with the column flush, aluminum nitrate (ANN) was introduced to the system directly from the supplier's tank-trailer. Failure of one of the Tygon lined ANN storage tanks and the lack of space in other tanks required that this be done. The usage of ANN direct from the vendor's storages also afforded the opportunity to observe solvent-extraction performance with salting agent that had not been in contact with tricrisyl phosphate used as a plasticizer in the Tygon lining material in the Redox storages. This plasticizer is presently believed to have contributed to the formation of emulsions in the extraction columns, which were prevalent during March.

Production was continuous at 3 unit/day rates with no evidences of emulsion in the extraction columns until April 18, when IA Column again gave symptoms of emulsion formation. The reappearance of difficulties in IA Column after 7 days of trouble-free operation, however, was coincident with an increasing quantity of solids (Al<sub>2</sub>O<sub>3</sub>) in the vendor's ANN. This was caused by depletion of the vendor's stored solution stocks, and hence, reduced settling times for solids which eventually appeared in the tank-trailer material. IA Column was restored to normal operation after being given a water flush. Redox production continued for the balance of the month at nominal 2.5 unit/day rates after a shut-down for repairs to the plant steam supply header on April 21.

Rotating Equipment - Pump P-H-5, the recirculation pump for the ruthenium scrubber, failed due to excessive seal leakage on April 15, after approximately 6 months intermittent operation pumping caustic solutions which varied in temperature from 30 to 110°C. Based on the conditions surrounding the seal failures to date, it appears advisable to maintain the seal water and seal at a temperature less than 50°C.

Activity released to the atmosphere through the ventilation stack averaged 1.5 curies per day during April with peaks of 4 curies per day during periods of dissolving. Difficulty is still being encountered with A and B Dissolver silver reactor heaters.

#### Process Performance

The following tables summarize steady-state decontamination and waste loss values by solvent extraction cycle for the month of April:





Period covering 3/31/52 to 4/10/52; average production rate of 2 units/day uranium (ANN from Tygon-lined storage tanks):

	Decontamination Factors (dF)				Decontamination Factors (dF)			Per Cent W	Waste Losses*	
	Uran	nium	Plut	onium	Uranium	Plutonium				
Cycle	Beta	Gamma	Beta	Gayma						
lst U	4.2	3.8	4.3	3.7	0.04	0.4				
2nd U	1.7	1.8			0.02					
3rd U	0.5	0.7			0.01					
2nd Pu			1.9	1.9		0.25				
3rd Pu			0.8	1.0		0.02				
Overall	6.4	6.3	7.0	6.5	0.07	0.67				

Period covering 4/11/52 to 4/21/52; average production rate of 3 units/day uranium (ANN directly from supplier's tank-trailer):

	Decon	taminatio	n Factor	s (dr)	Per Cent Waste I	osses*
	Uran	ium	Plut	onium	Uranium Plut	onium
Cycle	Beta	Gamma	Beta	Garma		
lst U	4.4	4.0	3.8	3.5	0.1	).4
2nd U	1.6	1.9			0.05	•
3rd U	0.1	0.4			0.1	
2nd Pu			2.5	2.4	(	2.0
3rd Pu			1.0	1.3	(	0.02
Overall	6.1	6.3	7.3	7.2	0.25	.62

Period covering 4/22/52 to 4/28/52; average production rate of 3 units/day uranium (ANN directly from supplier's tank-trailer):

	Decontamination Factors (dF)				Per Cent Was	aste Losses*	
	Uran	ium	Plut	onium	Uranium	Plutonium	
Cycle	Beta	Gamma	Beta	Gamma			
lst U	4.7	4.3	4.6	4.2	0.1	0.4	
2nd U	1.7	1.9			0.05		
3rd U	0.0	0.5			0.02		
2nd Pu			1.7	1.8		0.3	
3rd Pu			1.1	1.4		0.03	
Overall	6.4	6.7	7.4	7.4	0.17	0.73	

<sup>\*)</sup> Waste losses are steady-state values and do not reflect occasional high values that persist during an off-standard condition of operation. Agreement with overall loss for month is not expected.



Feed Preparation - The 20 batches of uranium processed in the Redox Plant during the month received an average of 587 MWD/T pile exposure with an average age ("cooling" period) of 55 days. All feed batches prepared from this material were carried through the oxidation step without ruthenium volatilization or zirconium-niobium scavenging.

Uranium Extraction and Decontamination - All three uranium solvent-extraction cycles operated during the month under nominal conditions of the ORNL June, 1949 acid-deficient Flowsheet (Document EW-22834) modified as follows:

IAS: IAF: IAX: IBX: IBS: ICX = 1.2:1.0:4.4:0.4:2.0:2.0 2(3)DS: 2(3)DF: 2(3)DX = 1.24: 1.0: 4.5

2DS and 3DS modified to 1.8M ANN, 0.2M HNO<sub>3</sub> - deficient IAF at 0.2M Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>·2H<sub>2</sub>O

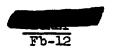
These flowsheet changes were made during March in order to decrease IA Column waste losses and improve the second and third cycle decontamination factors. Average uranium losses in the first extraction cycle waste were below the nominal flowsheet value during the month. Plutonium losses in the IAW averaged 0.4 per cent of the feed plutonium and half of this loss was determined as Pu(IV) by laboratory analysis.

During the last half of the month, after fresh ANN solution was introduced into the system on April 10, a gradual improvement in the first extraction cycle decontamination factor was noted. This trend toward improvement would indicate that fission product carry-over by entrainment from emulsions in IA Column has been reduced.

Fission product activity in the Redox uranium product ranged between 1.9 and 2.7 times natural uranium gamma and 0.2 times natural uranium beta activity. The U-237 gamma activity ranged from 30 to 50-fold greater than the fission product activity in the recovered uranium stream. The average plutonium content in the recovered uranium was 4 ppb and the sodium content averaged 3000 ppm (parts per million parts of uranium).

Plutonium Extraction and Decontamination - Flow ratios were modified on April 1, from nominal flowsheet values of 1:1:2 (2(3) AS:2(3)AF:2(3)AX) to 2:1:2 in an effort to reduce 3BP activities caused by fission product entrainment from emulsions. All other conditions of the HW#4 Flowsheet were maintained for the balance of the month. Emulsion difficulties in the plutonium extraction columns disappeared prior to the introduction of fresh ANN and have not recurred during the balance of the month.

The uranium content of the plutonium product averaged less than the tentative flowsheet specification of 0.1 per cent by weight. Two batches







encountered in the Isolation Building. Filtrates from the exalate precipitations contained 0.6 per cent of an average rum. Filtration times for the 12 to 15 liter slurry volume varied from 32 to 172 minutes.

Seventeen S Plant runs have been processed to filter boats with one plutonium (IV) exalate cycle and no peroxide cycles. Spectrochemical analyses for Al, Cr, Fe, Na and Ni made on buttons produced from the first four of these runs indicate satisfactory purity (Al - less than 20 ppm, Cr - 2 to 10 ppm, Fe -270 ppm, Na - less than 10 ppm, Ni - 100 to 500 ppm). Some precipitation of the peroxide was observed upon addition of the hydrogen peroxide used to insure that the product is in the plutonium (IV) state. In order to alleviate this condition, the addition of 50 per cent hydrogen peroxide was reduced to 0.5 liters from 1.0 liters for the approximate 40 liter process volume. The acidity of the runs processed has varied from 0.7 N to 4.2 N and is expected to range to higher values due to test work at S Plant. Insufficient data are available at present to evaluate the effect of the acidity other than the fact that there is a greater tendency toward plutonium peroxide precipitation at the lower acid concentrations. The product content of the filtrate varied from 0.6 per cent to 11.4 per cent with an average of 4.1 per cent. Filtration times for the approximate 40 liter slurry volume varied from 37 to 465 minutes; most runs, however, filtered in 60 to 200 minutes.

B and T Plant runs are being processed to filter boats through two peroxide cycles and one plutonium (IV) oxalate cycle or to sample cans through two peroxide cycles as demand and availability of filter boats dictate.

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600 mr/hr. Current shipments, Runs S-2-4-L-64 through 73 are ranging from 16 mr/hr to 31 mr/hr. The highly radioactive solutions were processed through the Isolation Building with a resultant maximum sample can radioactivity of 180 mr/hr (partial loads of Runs S-2-3-L-44 and 46). An arbitrary limit of 50 mr/hr on sample cans was set for processing in the 234-5 Building. It was observed that the radioactivity readings increased during storage. It is likely that this was due to the settling of solids in the AT solution since most runs were not filtered during the period that these runs were processed.

Neutralization of B and T Plant Runs - Past practice has been to adjust B and T Plant runs to 1.8 - 2.2 N acidity with potassium hydroxide or nitric acid. Experience with sodium decontamination on Redox runs has led to the use of sodium hydroxide for adjustment of B and T Plant runs. This was initiated on April 16, 1952 with Runs B-12-03-D-46 and T-12-04-H-11.

N-1 Filter B and T Plant Runs - Leaches of the filter plate and filter aid in Cell 4 (processing B and T Plant Runs made on April 8, 1952) recovered approximately 177 per cent of an average run. No reason for this abnormally high hold-up has been determined. Seventy-three runs were processed through this filter preceding the cleanout. Investigation has revealed no abnormalities in Isolation or Concentration Buildings processing other than the fact that some runs were held as long as one week after load-out in 224 before processing in the 231 Building. A leach of the filter made on April 19, 1952 recovered 38 per cent. Frequent leaches are being scheduled to prevent a recurrence of the high hold-up.

#### PURIFICATION AND FABRICATION BUILDING PLANT ASSISTANCE

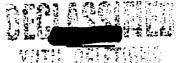
#### RG Line

Task I (Purification) - Impurity data on product solutions and resulting product from solutions originating in the Redox plant are being tabulated. P-1 and AT analyses are being included to complete impurity histories wherever possible. Data from (8) P-1, (27) AT and (36) DC-1 samples analyzed indicate that:

- 1. The separation factor for aluminum is approximately 140.
- 2. Separation factors for chromium are approximately 10 and 50 for peroxide and "plus three" oxalate precipitations respectively.
- 3. Lanthamum is removed by peroxide precipitation by a factor approximately 20.

Task III (Reduction) - Turnings were included in reduction charges again during April after a temporary discontinuance of this process step during March.





Turnings are being added to the bottom of reduction crucibles and the mixture of plutonium tetrafluoride, calcium and iodine is then added above the turnings.

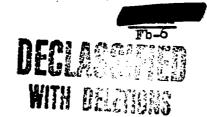
#### RM Line

Task II (Dry Chemistry) - Of 47 batches processed through RMA Line Task II equipment during April (to 4-25-52) thirty-seven (37) required special handling procedures. These procedures were required because of one or more "off-standard" conditions existing during the process cycles. Cycle interruptions due to loss of vacuum in furnaces (occurred 24 times) and water-trap alarms and shut-downs (occurred 18 times) accounted for most of the off-standard conditions.

Starting with RMX-12-4-36 a dry-chemistry cycle was adopted which includes converting plutonium (IV) oxalate to an oxide at 600°C and weighing the oxide. This procedure increases the dry chemistry cycle from ca. 7 hours to 13 hours. The oxide weight does provide a reference weight, however, which is used as a basis for detecting fluorides which may contain sufficient water (from aspirators) to produce undesirable pressures and products in the reduction operation.

Task III (Reduction) - A pressure rise to 450 lbs/sq.in. occurred in a Task III furnace when processing fluoride material of normal appearance salvaged from a dry chemistry product processed in an Inconel boat. A water back-up had occurred during the dry chemistry operations for this batch and it is suspected that hydrates of Nickel fluoride and/or plutonium tetrafluoride were not destroyed during the subsequent drying operations. The water thus held would give rise to a higher than normal pressure in the reduction equipment.

Redox batches RMX-12-4-3, 27 and X-12-4-87 after hydrofluorination contained large quantities (estimated 20 per cent of runs) of a light green colored material. Analyses indicated normal impurities except for sodium (2500 ppm). This material was rehydrofluorinated with no change in weight or appearance. Trial reductions (10 g scale) were made in the Chemical Development Laboratory. Buttons were obtained but the slag appeared abnormally distributed on the sides of the crucibles and around the buttons. The plant material was transferred to the RG Line where double-sealed reduction bombs are used and the material reduced without difficulty. Yields of 98.3 and 98.9 per cent were obtained in RG line with fluoride material transferred from the RM Line.



#### Miscellaneous

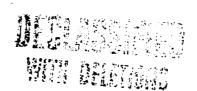
Production Test 235-5 (PuF Reductions with Calcium and Sulfur) - As of April 24, 1952, 52 RM Line reductions and 15 RG Line reductions had been completed in accordance with Production Test 235-5. Yields obtained have averaged:

- 1. EM Line reductions 88.9 per cent
- 2. RG Line reductions 96.8 per cent

Unfavorable conditions experienced during these reductions include:

- 1. The lower than normal yields reported above,
  - 2. Refractory slags, and
  - 3. Adherence of buttons to slag and/or crucibles.

The RG Line yields indicate that the process can be made to work acceptably though some yield improvement would be desirable. In an attempt to improve the yields and slag properties the amount of calcium used was varied from 25 to 75 per cent excess above stoichiometric requirements and quantities of sulfur were varied from 0.20 to 0.45 moles of sulfur per mole of plutonium. No yield or slag-property benefits were obtained. To determine the difference between the RM and RG Line yields the following variables have been investigated:





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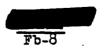
#### Separations Technology Unit

- 1. Degree of mixing of plutonium tetrafluoride, calcium and sulfur. Mixtures discharged to crucibles in the RM Line show a small degree of calcium segregation. Mixing completely by hand in the manner employed in the RG Line gave no improvement in yield.
- 2. RM Line mixtures were hand tamped with no improvement in yield.
- 3. Fluorides from the RM Line (from plutonium (IV) oxalates) were transferred to the RG Line for reduction and fluorides from the RG Line were mixed and reduced in the RM Line. An equivalent difference in yields as is shown by the difference in averages given above was obtained.
- 4. At month's end it has been determined that a 20 per cent increase in volume of a packed charge occurs in the RM Line equipment during evacuations for Argon purging. The conditions responsible for this will be corrected and the influence on yields determined.

Production Test 235-6 (Briquetting of Turnings for Recycle to Casting) - Six briquettes of turnings containing approximately 500 units each have been pressed. One briquette pressed with a force of 20 tons had a density indicating 44 per cent voids. Five briquettes made with a force of 50 tons had 20 to 25 per cent voids. Two castings were successfully made from these briquettes (Z-12-4-10F) and (Z-12-4-23F) with yields of 92.5 and 89 per cent. These castings were within the specifications applicable and were processed to completed units.

Production Test 234-1 Supplement C (Treatment of Concentrated Oxalate Supernatant to Permit Recycling) - The test provides for processing all of the remaining 128 lots of stored SN-3 material by a modification of the procedure found satisfactory in Supplements A and B of Production Test 234-1. Processing of the solutions will be started when an evaporator assembly is available.

Skull Dissolver - Equipment for the dissolution of the solid-waste material from the pouring operation is being installed in Room 221 of the 234-5 Building (Project C-422, Skull Dissolver). Due to the pyrophoric nature of the skull material and the possible ignition of the hydrogen evolved during dissolution, it has been recommended that facilities be installed to provide an inert atmosphere of either helium or argon in the hood and to permit a continuous inert purge of the dissolver system during dissolution. It has also been recommended that a thermocouple will be installed in the vapor line above the reflux condenser to facilitate control of the rate of vaporization. Upon completion of the hood, the operability of the equipment will be tested by performing a cold dissolution, employing copper as a stand-in for plutonium.





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Separations Technology Unit

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## REDOX PLANT ASSISTANCE

#### Plant Performance

The Redox Plant operated at an 87 per cent time efficiency (IAF basis), and averaged 2.2 units of uranium per operating day during the month. Operations were normal, generally, with two brief instances where emulsion formation became apparent on IA Column. The condition was remedied in each case by flushing the column with water. The following is an overall summary of plant production performance:

## Approximate

Tons of Uranium Processed	75.0
Plutonium Produced (Batch Equivalents)	107.6
Per cent Uranium to Waste	1.1
Per cent Plutonium to Waste	1.3

#### Operating Performance

Redox production was reestablished on March 28, at an average uranium processing rate of 2 units/day after a water flush was given to all extraction columns to remove emulsifying impurities. Operations were normal until April 3, when excessive quantities of plutonium appeared in the waste system. The appearance of the plutonium in the wastes resulted from an unexpectedly high boilup rate in the FR Cage facilities followed by transfer of the condensate containing plutonium to the waste cell. Recovery of the plutonium was accomplished successfully in the IS Column under acid-deficient flowsheet conditions. Waste losses from the IS Column indicated that better than 99 per cent of the plutonium in the feed was recovered.

Normal operation was resumed on April 5 and production rates increased to 3 units/day on April 8. During the period from April 8 to April 10, a gradual increase in the IA Column interface density accompanied by



increasing waste losses became apparent, indicating an emulsion build-up characteristic of March operation. The uranium extraction cycles were given a water flush to remove emulsion-forming impurities and operations were restored at a 3 unit/day processing rate on April 11. Coincident with the column flush, aluminum nitrate (ANN) was introduced to the system directly from the supplier's tank-trailer. Failure of one of the Tygon lined ANN storage tanks and the lack of space in other tanks required that this be done. The usage of ANN direct from the vendor's storages also afforded the opportunity to observe solvent-extraction performance with salting agent that had not been in contact with tricrisyl phosphate used as a plasticizer in the Tygon lining material in the Redox storages. This plasticizer is presently believed to have contributed to the formation of emulsions in the extraction columns, which were prevalent during March.

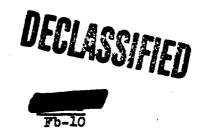
Production was continuous at 3 unit/day rates with no evidences of emulsion in the extraction columns until April 18, when IA Column again gave symptoms of emulsion formation. The reappearance of difficulties in IA Column after 7 days of trouble-free operation, however, was coincident with an increasing quantity of solids (Al<sub>2</sub>O<sub>3</sub>) in the vendor's ANN. This was caused by depletion of the vendor's stored solution stocks, and hence, reduced settling times for solids which eventually appeared in the tank-trailer material. IA Column was restored to normal operation after being given a water flush. Redox production continued for the balance of the month at nominal 2.5 unit/day rates after a shut-down for repairs to the plant steam supply header on April 21.

Rotating Equipment - Pump P-H-5, the recirculation pump for the ruthenium scrubber, failed due to excessive seal leakage on April 15, after approximately 6 months intermittent operation pumping caustic solutions which varied in temperature from 30 to 110°C. Based on the conditions surrounding the seal failures to date, it appears advisable to maintain the seal water and seal at a temperature less than 50°C.

Activity released to the atmosphere through the ventilation stack averaged 1.5 curies per day during April with peaks of 4 curies per day during periods of dissolving. Difficulty is still being encountered with A and B Dissolver silver reactor heaters.

#### Process Performance

The following tables summarize steady-state decontamination and waste loss values by solvent extraction cycle for the month of April:





Period covering 3/31/52 to 4/10/52; average production rate of 2 units/day uranium (ANN from Tygon-lined storage tanks):

	Decontamination Factors (dF)				Per Cent Wa	aste Losses*
	Urai	ium	Plut	onium	Uranium	Plutonium
Cycle	Beta	Gamma	Beta	Gamma		
lst U	4.2	3.8	4.3	3.7	0.04	0.4
2nd U	1.7	1.8			0.02	
3rd U	0.5	0.7			0.01	,
2nd Pu			1.9	1.9		0.25
3rd Pu	<u></u> _		0.8	1.0		0.02
Overall	6.4	6.3	7.0	6.5	0.07	0.67

Period covering 4/11/52 to 4/21/52; average production rate of 3 units/day uranium (ANN directly from supplier's tank-trailer):

	Decon	taminatio	n Factor	Per Cent Was	te Losses*	
	Urai	nium	Plut	onium	Uranium	Plutonium
Cycle	Beta	Gamma	Beta	Gamma		
lst U	4.4	4.0	3.8	3.5	0.1	0.4
2nd U	1.5	1.9			0.05	
3rd U	0.1	0.4			0.1	
2nd Pu			2.5	2.4		0.2
3rd Pu			1.0	1.3		0.02
Overall	6.1	6.3	7-3	7.2	0.25	0.62

Period covering 4/22/52 to 4/28/52; average production rate of 3 units/day uranium (ANN directly from supplier's tank-trailer):

	Decom	camination Factors (dF) Per Cent Waste			te Losses*	
	Uran	ium	Plut	onium	Uranium	Plutonium
Cycle	Beta	Gamma	Beta	Gamma		
lst U	4.7	4.3	4.6	4.2	0.1	0.4
2nd U	1.7	1.9			0.05	
3rd U	0.0	0.5			0.02	
2nd Pu			1.7	1.8		0.3
3rd Pu			<u>1.1</u>	1.4		0.03
Overall	6.4	6.7	7.4	7.4	0.17	0.73

<sup>\*)</sup> Waste losses are steady-state values and do not reflect occasional high values that persist during an off-standard condition of operation. Agreement with overall loss for month is not expected.

Feed Preparation - The 20 batches of uranium processed in the Redox Plant during the month received an average of 587 MWD/T pile exposure with an average age ("cooling" period) of 55 days. All feed batches prepared from this material were carried through the oxidation step without ruthenium volatilization or zirconium-niobium scavenging.

Uranium Extraction and Decontamination - All three uranium solvent-extraction cycles operated during the month under nominal conditions of the ORNL June, 1949 acid-deficient Flowsheet (Document HW-22834) modified as follows:

IAS: IAF: IAX: IBX: IBS: ICX = 1.2:1.0:4.4:0.4:2.0:2.0 2(3)DS: 2(3)DF: 2(3)DX = 1.24: 1.0: 4.5

2DS and 3DS modified to 1.8M ANN, 0.2M HNO  $_3$  - deficient IAF at 0.2M Na\_CCr\_2O\_7.2H\_2O

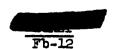
These flowsheet changes were made during March in order to decrease IA Column waste losses and improve the second and third cycle decontamination factors. Average uranium losses in the first extraction cycle waste were below the nominal flowsheet value during the month. Plutonium losses in the IAW averaged 0.4 per cent of the feed plutonium and half of this loss was determined as Pu(IV) by Laboratory analysis.

During the last half of the month, after fresh ANN solution was introduced into the system on April 10, a gradual improvement in the first extraction cycle decontamination factor was noted. This trend toward improvement would indicate that fission product carry-over by entrainment from emulsions in IA Column has been reduced.

Fission product activity in the Redox uranium product ranged between 1.9 and 2.7 times natural uranium gamma and 0.2 times natural uranium beta activity. The U-237 gamma activity ranged from 30 to 50-fold greater than the fission product activity in the recovered uranium stream. The average plutonium content in the recovered uranium was 4 ppb and the sodium content averaged 3000 ppm (parts per million parts of uranium).

Plutonium Extraction and Decontamination - Flow ratios were modified on April 1, from nominal flowsheet values of 1:1:2 (2(3) AS:2(3)AF:2(3)AX) to 2:1:2 in an effort to reduce 3EP activities caused by fission product entrainment from emulsions. All other conditions of the HW#4 Flowsheet were maintained for the balance of the month. Emulsion difficulties in the plutonium extraction columns disappeared prior to the introduction of fresh ANN and have not recurred during the balance of the month.

The uranium content of the plutonium product averaged less than the tentative flowsheet specification of 0.1 per cent by weight. Two batches







(L-82 and L-83) contained 16.0 per cent and 2.9 per cent uranium, respectively, and were processed in 231 Building upon prior notification and approval for shipment. The high uranium content in these batches was caused by an off-standard start-up of IB Column after a scheduled shut-down. No plutonium product cans from Redox April production required recycle to 224 Building. Lower acidities (3 to 4N) in the product solution, due to the increased scrub ratios, has permitted successful evaluation of the direct oxalate strike in 231 Building.

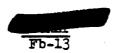
Solvent Recycle - The plant solvent-recovery system, IO Column and the Hexone Distillation Column (G-3), in general, operated satisfactorily using water as a scrub solution in both units. The concentration of methyl isobutyl ketone, mesityl oxide, isopropyl diketone, l,l dinitroisobutane, oxidizing normality and pH remained below process specification during the entire period. External retreatment consisting of the standard acid-dichromate wash was given to 40% of the recycled solvent until April 7. Retreatment was then discontinued since there were no apparent benefits realized in solvent purity or solvent extraction equipment operation.

Solvent losses have averaged 350 gallons per day for the month. Daily inventory checks indicate that high and low losses are experienced periodically, and appear to be related to the waste cell operation.

Rework - One batch of recovered uranium was reworked during the period of March 29 to 31 when the gamma activity ratio due to fission products was reported as being 5 times, as compared to a tentative specification of 3 times, that of natural uranium. Rework was accomplished by recycling the material through the second and third uranium extraction cycles while maintaining regular in-line production. Uranium batches produced during the rework period averaged less than 2 times natural uranium gamma activity due to fission products, based on gamma scintillation counting with an 8.9 gram absorber.

Another batch of uranium, which had become contaminated with plutonium during February operation, was recovered on April 4 by rework in IS Column in parallel with IA Column using the ORNL June, 1949 Flowsheet conditions. The rework period was of short duration and involved about one ton of metal. No waste loss data were obtained on the IS Column, but salt waste batches produced during the operation followed by uranium and plutonium balances indicated good recovery.

Two consecutive salt waste batches were processed through IS Column under acid-deficient flowsheet conditions on April 5 to recover a high plutonium content which originated from PR Cage condensates. The rework of these salt wastes was accomplished in a IS-IB-IC Column first-extraction cycle with IC Column remaining stagmant allowing about one pound of uranium to go to waste via IO Column. The IB Column plutonium stream was given the normal



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two-cycle decontamination treatment after separation in IB Column. The salt waste rework was accomplished successfully in about 24 hours of operation. Flow ratios to IS Column were ISS:ISF:ISX = 1:6:2 with neutral extractant. Feed and scrub compositions were as follows:

ISF at 2.0M ANN, 0.1M Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>·2H<sub>2</sub>O, 0.2 M HNO<sub>3</sub> -deficient. ISS at 1.3M ANN, 0.01M Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>·2H<sub>2</sub>O, 0.2M HNO<sub>3</sub> -deficient

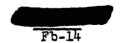
Weste losses from IS Column averaged 0.25 per cent of the plutonium in the feed. Decontamination factors for beta and gamma activity were 4.8 and 4.4, respectively.

Special Studies (Path of Iodine - 131) - Data obtained during steady state processing of 515 MWD/T, 60 day "cooled" metal feed show that approximately 40 per cent of the I<sub>131</sub> remaining in dissolver solution is evolved during the metal oxidation step, and 99 per cent of the remainder leaves in IA Column wastes. The uranium and plutonium batches recovered during this time contained only  $3.7 \times 10^{-5}$  and  $2 \times 10^{-3}$  per cent, respectively, of the iodine originally present in the dissolver solution.

## Process Chemistry

Redox Extraction Column Emulsions - Intensive laboratory efforts were continued during the month to determine the causes of, and means of minimizing, emulsification in the Redox Plant solvent-extraction columns. A successful laboratory technique was developed during the month for detecting the presence of emulsifying impurities in Redox streams. Termed the "crud column" test, this technique employs a glass laboratory column approximately 3/4-inch i.d. and 3 feet long, packed with 1/4 inch by 1/4 inch stainless-steel Raschig rings, and with enlarged unpacked end-sections. The column is filled initially with approximately 200 ml of the hexone sample to be tested. Then approximately a one-liter sample of the aqueous sample to be tested is fed through the column (through the static hexone phase) from the top, maintaining the column interface below the packing, in the bottom enlarged end-section. The aqueous phase emerging from the bottom of the column is collected and recycled back through the column again for as many as 60 throughputs of the entire aqueous sample. Emulsifying impurities, if present, have generally shown up as a fish-egg type emulsion layer on the column bottom interface, the first signs of emulsion showing after several aqueous throughputs, and increasing to as much as a 6 inch depth of emulsion after 30 to 50 throughputs of the 1 liter aqueous sample. No emulsion is built up on the "crud column" interface using Redox solutions which do not contain emulsifying impurities.

Using the above "crud column" test, the presence of an emulsifying agent was detected in the aluminum nitrate (ANN) from the Redox Plant 72 per cent ANN storage tanks. This was subsequently traced to the Tygon tank liner





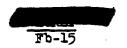


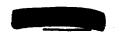
which contains 25 to 30 per cent of tricresyl phosphate as plasticizer. Apparently the tricresyl phosphate was leached from the liner by the warm (50°C) ANN solution and hydrolyzed to H<sub>3</sub>PO<sub>h</sub> and cresol. Cresol has been shown to be readily nitrated by ANN to produce a mixture of intensely yellow nitrated cresols (or salts) which cause emulsions in Redox two-phase systems. The nitrated cresols can be at least partially removed from the ANN by steam distillation, and variations of this procedure are being studied in the laboratory to determine whether the cresol contamination in the present plant ANN inventory can be removed economically. In the meantime the Redox Plant is being supplied with ANN directly from the supplier's tank-trailer, bypassing the Tygon-lined tanks.

Although contamination of the Redox ANN with tricresyl phosphate was apparently responsible for the most severe emulsion formation in the Redox columns, occasional buildups of emulsion are still evident (particularly in the IA, 2A, and 3A Columns) due, it is believed, to the small concentration of alumina (Al<sub>2</sub>O<sub>3</sub>) solids which are present in 72 per cent ANN as delivered by General Chemical Company. Samples of ANN taken from the tank-trailer have been checked for Al<sub>2</sub>O<sub>3</sub> in suspension, and are showing from 0.05 to 0.25 vol.%. after dilution of the ANN to 62 per cent concentration. The scrub streams prepared from these batches of ANN show corresponding amounts of suspended solids, no significant increase in solids having resulted from making the scrubs acid-deficient by adding NaOH. Filtration and centrifugation tests are under way in the laboratory in an attempt to find a method for removing the above Al<sub>2</sub>O<sub>3</sub> in the Redox Plant.

Solvent Treatment - In the investigation of Redox plant emulsion troubles, it has been shown that a non-volatile oily residue is produced by the action of ANN on hexone (and by the effect of irradiation on hexone), but laboratory tests fail to show that this oily residue is contributing to serious emulsification in the extraction columns. This residue, which has fairly definitely been established as a decomposition product of hexone itself, has not yet been more completely identified. Some recent non-volatile oily residue determinations on plant hexone show that the plant Organic Distillation Column is continuing to remove approximately 90 per cent of the oily residue from the plant hexone.

Impurities in Recovered Uranium - Studies have been continued using a 3/8 inch Mini 12-stage miniature mixer-settler as a 2D (or 3D) Column testing modifications to the Redox flowsheet intended to reduce the Na, Fe, and Al contamination in Redox recovered uranium. Current Hanford Works UO<sub>3</sub> produced from Redox recovered uranium is averaging approximately 2000 to 5000 ppm. Na, 100 to 200 ppm Fe, and 2000 ppm Al. These contaminants are dissolved and/or entrained along with the uranium in the 2DU (or 3DU) hexone extract stream which contacts the aqueous 2DS (or 3DS) Scrub stream (nominal composition: 2M ANN, 0.2M Na+, 0.05M Fe++). Isboratory tests employing





	the above Mini unit have shown that when the 2DS is not made acid-deficient
	(no Na+) the Na content of the 2DU drops from approximately 2500 to 500 or
	(no hat) the ha content of the 200 drops from approximately 2000 to 500 or
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## 221-U Plant

The 221-U Building was accepted by Operations for beneficial occupancy on April 5. Construction is now confined to clearing up incomplete or unacceptable items.

Approximately three-quarters of the canyon tanks have been calibrated by Operations. Calibration of the solvent area tanks is underway, with the diluent tank presently in use. Other chemicals required for start-up are presently being received.

Standard procedures for the operation of the equipment in 221-U Building production line "A" have been distributed. Run plans for feed and waste concentrator cold shakedown runs have been issued and plans for another series of "cold" complete production line runs are being published.

224-U Plant - UO<sub>3</sub> Conversion - Five lots (40 drums) of UO<sub>3</sub> were processed during the latter part of March before storage of the Redox UNH for U-237 cooling became necessary on March 30. (Approximately 96,000 lb. of uranium has been stored to date.) One carload of 12 lots (96 drums) of UO<sub>3</sub> was shipped to K-25 on April 15. The presence of U-237 in approximately 70- to 75-day (from pile discharge) Redox UNH did not increase the radiation level, as read in the pot room. Survey readings taken above the pots with the pot lid removed while processing the above 70- to 75-day UNH were approximately the same as similar readings with the pots empty (70 to 120 mrep/hr, and 7 to 13 mr/hr). Normal readings around the tops of the pots during operation with the pot lids on are approximately 5 mr/hr, or less.

Approximately one-half of the 5000 lb. of Mallinckrodt pure uranium to be used for testing Hanford calcining operations, is on hand as 50-70% UNH solution. Calcination of this material under conditions used for Redox UNH will take place as soon as the remainder of the material is received.

Operating procedures for the UNH Concentration and Nitric Acid Recovery have been issued. A shakedown run plan for this equipment is presently being prepared.

224-U Building UNH concentration and nitric acid recovery equipment has been turned over to Operations... Flushing, calibration, and preliminary test operations have been started. A sampler which will be used for obtaining additional data for evaluating tower performance has been installed in the off-gas line from the HNO3 absorber.

Rotating Equipment - To date, 101 Uranium Recovery Plant pumps have been accepted. This includes all of the 221-U Building pumps and operating spares except certain pump-agitator combinations mounted on a common flange, which have been sent directly to 221-U Building without preliminary test in mock-up.





## Process Chemistry

Laboratory UNH-to-UO<sub>3</sub> calcination equipment was put through shakedown runs during the month. The stainless-steel calcination pot is approximately 3-inches in diameter and handles a nominal charge of approximately one lb. of UO<sub>3</sub>. Mallinckrodt UNH solution (2M UNH) was concentrated to approximately 86 per cent UN in the laboratory calcination unit and was then converted to UO<sub>3</sub> by a 30-minute warm-up, 5-minute calcining, and 12-minute drying cycle. Excluding the wall-cake (80 grams) the 490 grams of good product analyzed:

σο <sub>3</sub>	97 • 3%
π <sub>3</sub> ο <sub>8</sub>	0.04%
HNO3	0-47%
H <sub>2</sub> C	0.42%
Bulk Dens.	2.57 g/cc

The effect of Al, Na, and Fe impurities on calcination behavior and UO3 quality will be studied by spiking these impurities into pure UNH solution.

The effect of irradiation on TRP plant solvent was studied briefly by making a series of phase-distribution-ratio contacts (for uranium) with 12.5 per cent TRP in Shell Spray Base, which had been exposed to about  $2 \times 10^5$  R/hr of gamma radiation. Results of the tests indicate good solvent stability up to an irradiation time of at least 24 hr.

#### REDOX AND METAL RECOVERY DEVELOPMENT

#### Process Studies

The possibility of deleting the nitric acid from the Redox 2AX and 3AX streams was evaluated and described in HW-24088. It was found that either increasing the 2AS to 1.8M ANN and maintaining present flow ratios (2AS:2AF:2AX = 1:1:2) or increasing the 2AS concentration to 1.45M ANN and changing the flow ratios to 2AS:2AF:2AX = 1:1:4 are equally feasible from a process viewpoint. A further increase of 2AX flow ratio with attendant decrease of 2AS concentration risks producing an acid-deficiency in the extraction section with a potential loss of Pu(IV) to the 2AW. Any appreciable increase of 2AX flow rate will require the replacement of the 2B Column (and 3B Column) with another of a larger diameter.

In 1949, an acid-deficient 2A flowsheet was explored at KAPL. This acid deficient flowsheet was re-examined briefly during the month to determine its potential for improved decontamination in the Redox Plant second and third plutonium cycles. It was concluded that very close control of stream flows and concentrations would be required to attain advantageous conditions, and that such close control under plant operating conditions is probably not practical.







## Chemical Engineering Development

Purex Solvent-Extraction Studies - During the month seventy-nine Purex-process solvent-extraction studies, with CCl4 as the diluent and with "cold" (unirradiated) uranium were carried out in 321 Building. They included sixty-two IA, IB, IC, 2A, and 2B Column H.T.U. and flooding determinations in a 3-inch-diameter glass pulse column; and sixteen IA, IB, and IC Column H.T.U. studies and one IC Column flooding determination in an 8-inch diameter stainless-steel pulse column. The approximate conditions of the Purex flowsheet presented in Document HW-22888 were employed. In the 2A and 2B Column runs uranium was used as a stand-in for plutonium. The highlights of the new findings are as follows:

- 1. 0.06-inch-diameter holes gave lower H.T.U. values and lower capacities than 0.125-inch-diameter holes in 3-inch-diameter IA, IC, 2A, and 2B Column runs with stainless-steel plates with 22 ± 1 per cent free area, spaced 2 inches apart.
- 2. In 3-inch IC Column runs, rendering the top face of the perforated plates preferentially organic-phase wetted (by coating with Kel-F NW-25, a fluorothene dispersion) resulted in H.T.U.'s equal to and a capacity higher than those obtained with similar plates with both top and bottom surfaces uncoated stainless steel. (Capacity limitations of the pilot-plant auxiliary equipment did not permit establishment of the magnitude of the capacity increase.) This is in substantial agreement with earlier findings by Chemical Research, Separations Technology Unit, with a l-inch-diameter hydrocarbon-diluent IC Column.
- 3. Reduction of the 2AF (2A Column feed) HNO<sub>3</sub> concentration from 6M to 4M and adjustment of the 2AF:2AX:2AS volume flow ratio from 8:2:1 to 6:2:1 resulted in an approximately 30 per cent increase in the 2A Column capacity on a total volume throughput basis (about 50 per cent increase on the basis of the weight of uranium and plutonium processed). This indicates the feasibility of processing, at the modified flowsheet conditions, a 2AF volume corresponding to as much as approximately 11 tons U/day in an 8-inch-diameter 2A Column with 0.06-inch-diameter plate perforations. An 8-inch diameter 2A Column is the largest diameter which is infinitely safe from a slow-neutron chain reaction. These flowsheet modifications exerted no significant effect on waste losses and H.T.U. values.
- 4. The 2A and 2B Columns operated without difficulty with stainless-steel plates with hole diameters as small as 0.026 inch, with 15 per cent free area and 1-inch plate spacing. The uranium losses and H.T.U. values were at least as low as with 0.06-inch-diameter holes, 21 per cent free area, 2-inch plate spacing; while the capacity of the 2A Column was reduced to about 30 per cent and that of the 2B Column to about 70 per cent of the 0.06-inch-hole values.



A set of tentative specifications of CCl<sub>h</sub>-diluent Purex pulse columns capable of processing 8.33 tons U/day has been prepared in rough draft form. These tentative specifications, indicating the feasibility of a 32-foot cascade height, were based on pilot-plant data obtained before April 10, 1952, and are subject to revision as new data are developed.

#### Mechanical Development

Purex Corrosion Studies - Investigations of the corrosion resistance of materials of construction to Purex process streams spiked with chloride ion to simulate the concentration of chloride ion which may occur as a result of CCl4 decomposition are being carried out in (a) batch semiworks equipment simulating the Purex No. 1 waste concentrator, (b) continuous semiworks equipment simulating the Purex No. 1 waste concentrator and nitric acid fractionating tower, and (c) laboratory equipment in which metallurgical samples of materials are exposed to various Purex solutions under controlled conditions.

The batch concentrator has been operated for 46 hours boiling a simulated Purex No. 1 waste solution spiked with a nominal 4 g/l of Cl<sup>-</sup> (i.e., approximately 4000 ppm Cl<sup>-</sup>). All overhead vapors are condensed and returned to the concentrator. Analysis of the boiling (ll4-ll6°C) bottoms liquid and the condensed vapor show chloride ion concentrations of 2.8 to 3.2 g/l in the bottoms liquid and 4.7 to 5.2 g/l in the overhead. Corrosion rates for Type 302, 304, 304 KLC, 309 SCb, 347, and Carpenter 20 stainless steel exposed to boiling bottoms liquid, overhead vapor, and condensing vapor were less than 0.0015 inch per month. The corrosion rate of Type 430 stainless steel exposed to boiling bottoms liquid and overhead vapor was less than 0.0025 inch/month.

Two runs (in addition to one shakedown run of 6 hours duration) have been made in a Purex (CCl<sub>h</sub> flowsheet) continuous waste concentrator and acid fractionator using a concentrator feed solution (IAW) which was (a) spiked with 500 ppm Cl<sup>-</sup>, and (b) unspiked. The run with unspiked feed was made to determine the equilibrium concentration of Cl<sup>-</sup> in the concentrator bottoms due to hydrolysis of the CCl<sub>h</sub>. The run using a spiked feed was made to determine the Cl<sup>-</sup> concentration profile throughout the system. Using unspiked IAW feed containing 0.007 g/l Cl<sup>-</sup>, the system was operated continuously at a feed rate of 365 ml/min for 24 hours after the concentrator had reached steady-state operation. The actual chloride ion concentration in the bottoms liquid after steady state operation was achieved, averaged 0.04 g/l at a nitric acid concentration of 400 g/l, UNH concentration of 94 g/l, boiling temperature of 113°C.

Metallurgical samples of Type 309 SCb, 304 ELC, 316 and Carpenter 20 stainless steel have been statically exposed to simulated Purex (CCl<sub>1</sub> flowsheet) IAP, 2AW, 2DF, and an agitated two-phase system representing the IA Column feed point, all at room temperature, and spiked with NaCl to give Cl concentrations up to 3000 ppm. Corrosion rates have been less than 0.0005 inch/month in all cases. Additional corrosion tests are underway with IAP, 2AW,



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Separations Technology Unit

and 2DF at room temperature, spiked with 4000 ppm Cl- and with boiling ICU, IAW, uranium product and plutonium product (simulated with uranium) spiked with 3000 ppm Cl-.

## Pump Development

Submerged Pump No. 1 has been put in service pumping CCl<sub>\(\beta\)</sub>. The pump is a regenerative turbine type, equipped with a 2-foot long drive shaft and one process-solution-lubricated boron carbide bearing. It was operated for 135 hours pumping CCl<sub>\(\beta\)</sub> at a 0.5 gal/min against a 3-foot head. Over the test period, operation was smooth and quiet. No wear of the boron carbide bushing was evident nor was the stellite shaft scored or worn. Operation was resumed with a Graphitar No. 2 bushing replacing the boron carbide. Operation has been continuous for 72 hours.

#### Bearing Program

Chromium Carbide, a new material manufactured by Carboloy Inc., which has a hardness slightly less than boron carbide but much greater strength has been tested in several solutions for chemical resistance for use as a possible bearing material. After 6-1/2 hours exposure to 60 per cent boiling nitric acid the corrosion rate was calculated to be 0.75 inch/month. After 7 days exposure to 60 per cent HNO3 at room temperature the corrosion rate was 0.004 inch/month and in IAF at room temperature for 48 hours, the rate was 0.0019 inch/month. The high corrosion rate in boiling HNO3 is a definite deterrent to use of this material as a process-solution-lubricated bearing.

Three bearing test machines have been set up and recalibrated. Tests are underway to evaluate Purebon #9 (carbon-graphite) and Graphlon R-12 (graphite filled Teflon) when lubricated by CCl<sub>h</sub>.

#### Instrument Development

Jetting Purex Solutions - A 3 gal/min steam jet was successfully used to jet an aqueous Purex IAW saturated with CCl<sub>h</sub>. The jet suction temperature was 25°C and the discharge temperature was 53°C. Attempts were made to jet pure CCl<sub>h</sub> by means of 80 lb/sq in ga air applied to a 3 gal/min steam jet. The amount of CCl<sub>h</sub> transferred was in the range of only 15 lb/hr. The temperature in the jet discharge dropped to 13°C indicating excessive vaporization of CCl<sub>h</sub>. Several well-known jet manufacturers are being contacted for information regarding the feasibility of jetting either CCl<sub>h</sub> or CCl<sub>h</sub> containing a higher boiling additive, employing either air or steam as the motivating fluid.

#### Materials Testing

Decontamination Studies. A program for evaluating decontaminants and decontaminating procedures will be conducted in 222-S Building. A polythene junior



cave liner, and accessory equipment for carrying out these studies, has been fabricated and installed. Operability runs using water and nitric acid will be conducted in the junior cave to test the operation of the remote control equipment during the week of April 28. The equipment has been designed with sufficient shielding to allow decontamination studies to be conducted using full level Redox solutions.

Radiation Damage in Liquids - A second series of tests to determine the effect of gamma radiation on CCl<sub>k</sub> has been carried out in the 105-F area cooling basin. At an average level of  $2.5 \times 10^5$  R/hr, measured with a TP meter, approximately 0.5 gram of chloride per liter of CCl<sub>k</sub> was formed per  $10^6$  R in a simulated Purex IA Column system (organic/aqueous ratio = 2). Coupons of sensitized 347 stainless steel immersed in the organic phase showed less than 0.0003 inch/month corrosion.

#### Hot Semiworks

Construction of the Hot Semiworks is 88 per cent complete. The crib and waste storage tank were completed and covered with back fill. Roads and walks were paved and fencing started. Outside electrical work has been completed except for work to be done by General Electric. All extraction columns were leak tested and installed in "B" Cell. All stripping and deentrainment towers were cleaned and packed with one-inch Raschig rings. Cleaning and testing of piping in the Solvent Building was completed with a few exceptions. Piping in the Aqueous Building was completed and cleaning and testing was started. Piping in the Hot Process Building is approximately 50 per cent complete.

The Hot Semiworks Manual is 98 per cent complete in rough draft and 25 per cent complete in final copy.

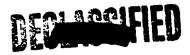
## SEPARATIONS PROCESS RESEARCH

#### Pretreatment of Dissolver Solution with Urea to Destroy Nitrites

A laboratory investigation has been made concerning the use of urea to destroy nitrites in dissolver solution prior to Redox Head-End treatment, thus preventing secondary reduction of permanganate prior to ruthenium volatilization and effectively increasing the permanganate available for ruthenium oxidation. Nitrites in simulated dissolver solution are reduced rapidly and completely by urea at temperatures above 25°C. Urea does not reduce permanganate at 95°C to any observable extent. The problem of precipitation of ammonium uranyl chromate in IA (ammonium ion is formed on hydrolysis of urea) has been investigated. Without benefit of complete analytical results, experiments based on estimated dissolver solution conditions indicate urea







treatment can be used without fear of precipitation in the IA Column. In the event such precipitation should occur, ammonium uranyl chromate is water soluble.

## Ion Exchange Coupling

A Dowex-50 resin column (1 1/2" x 4 1/3') has been loaded with 127 grams of plutonium. The plutonium band occupied approximately 40 per cent (21") of the resin bed. The plutonium was eluted with 6 M HNO3 and 0.4 M NH2SO3H at a flow rate of 0.26 ml/min/cm<sup>2</sup>, and the plutonium concentration of successive 450 ml cuts were 158.4 g/1, 80.4 g/1, 27.1 g/1, 10.8 g/1 and 3.8 g/1. These data indicate that 60.6 per cent of the plutonium was removed from the resin at 158.4 g/1 Pu, 84.2 per cent at 120 g/1, 93.5 per cent at 89.3 g/1, 97.6 per cent at 69.3 g/l or 98.8 per cent at 56 g/l. A comparison of these data with elution data obtained from shorter columns (ca. 8" plutonium band) shows that a long plutonium band is definitely desirable. Considerable difficulty was encountered in the plutonium adsorption step in that the resin collected gas (mainly No) at the bottom of the column. This run showed that some means of removing gas from the feed is definitely needed before the operation of a long resin column becomes practical. There is good reason to believe that the substitution of hydroxylamine sulfate by sulfurous acid will eliminate all gas formation difficulties during the adsorption process and a run is now in progress to verify this hypothesis.

Approximately 20 grams of plutonium from Redox IIRP solution (1.78 g/l Pu and 0.25 M HNO<sub>3</sub>) has been loaded onto a Dowex-50 resin column to determine the decontamination of plutonium from fission products present in the IIRP (mainly zirconium, niobium and ruthenium). Most of the fission products remained on the resin after the plutonium had been eluted resulting in a further decontamination factor of about nine. A solution 0.05 M F and 0.1 M HNO<sub>3</sub> removed about 50 per cent of these fission products from the resin while 0.1 M H<sub>2</sub>C<sub>2</sub>O<sub>4</sub> and 0.1 M HNO<sub>3</sub> seemed to be ineffective.

#### Redox Assistance

Some of the operational difficulties of the Redox plant have been studied during this period. The investigations include: study of the impurities in hexone and in process chemicals, the study of the physical properties of the system and examination of the interface cruds from Redox columns.

Samples of hexone waste streams showed small amounts (ca.  $10^{-3}g/1$ ) of nitro derivatives and a compound having an absorption spectra similar to nitroso methylisobutyl ketone. A somewhat larger amount of an unknown impurity having an absorption spectra reaching into the visible region is also present. Dike tone concentration was less than  $10^{-2}$  g/1. Two samples of hexone which had been irradiated in the pile basin for 22 days were found to contain large quantities of nitration products. The absorption spectra were





characteristic of both the dinitro isobutane and  $\prec$  nitroso methylisobutyl ketone and the compounds appeared to be present in concentrations of 0.3 to 1.0 g/l. The intense color of these samples is due in large part to unknown substances of higher molecular weight.

A sample of interface precipitate from the IA column was separated by centrifugation. This material was found to be largely alumina with considerable amounts of chromium and silicon together with somewhat smaller amounts of ruthenium. No manganese was found, although head-end treatment was employed at the time the sample was taken. The ruthenium was undoubtedly responsible for the very high beta-gamma activity of the sample.

By contrast, a sample of precipitate from the IIID interface was found to be iron and aluminum compounds which were easily acid soluble. One sample analyzed 36 per cent iron. The conventional test for disengaging times has, in agreement with earlier information, failed to show correlation with the impurities in the solutions and little correlation with bulk physical properties. Attempts to determine whether the dispersions obtained were hexone-inaqueous or aqueous-in-hexone have been inconclusive. The tests are not conclusive at present but do suggest that viscosity, density and the nature of the specific cation used for salting are important. Measurement of interfacial surface tensions by two independent methods has indicated that these are uniformly low and probably not of great importance in the dispersion settling problems. Continuation of the work on the nature of these dispersions is planned.

Pulse column studies employing plant aluminum nitrate solutions and hexone as well as laboratory prepared aluminum nitrate solutions and pure hexone have shown that the presence of solids in the IAS contribute to poor performance of the column and that pure hexone gave slightly better performance than plant hexone. The solvent extraction behavior was not significantly affected by the different materials in the column, i.e., waste losses were the same for all solutions employed.

Batch studies were performed to test the effect of "Glaslube" (an anti-fcam agent) on the extraction of plutonium and fission products in the Redox Process. In comparative tests no effect was found on IA extraction of plutonium or on IB stripping. The beta-gamma activity in the IAP was normal.

#### Recuplex Assistance

Variations in E<sup>O</sup><sub>2</sub> Pu in the extraction stages were studied as a function of aluminum nitrate and nitric acid concentrations. It was concluded that aluminum nitrate in the feed CAF could be reduced from 0.8 M to 0.3 M with but slight decreases in the EO Pu. Increasing the nitric acid concentration higher than the specified 3.8 M offers no advantages.







Studies on the effect of residence time of plutonium at 20 g/l in 15 per cent TBP-CCl<sub>h</sub> indicate that after 100 hours 0.2 g/l Pu will be fixed in the organic and not removed in the stripping column. This organic phase is still effective as an extractant. In a single stage contacting with test feed 97.5 per cent of the test feed plutonium was extracted with a normal distribution coefficient.

#### Uranium Recovery Flowsheet Studies

Employing a 3/8" Mini mixer settler unit, seven "cold" runs and three "hot" runs have been made on the Uranium Recovery flowsheet (HW #4). Interstage efficiencies are uncertain but appear to be in the range of 40 to 60 per cent. In two runs with ten extraction and two scrub stages used in the unit and employing six year aged metal waste, the uranium product did not meet beta specifications by a factor of ca. 8 and did not meet gamma specifications by a factor of 1.4. Upon stripping the uranium from the organic phase, gamma specifications were met, but no further decontamination was effected for the beta activity. Incomplete analytical data indicate that this beta activity consists almost entirely of rare earths. In the third hot run using only six extraction stages and four scrub stages, the product did meet specifications.

A batch countercurrent run employing six year aged metal waste did meet both specifications in three extraction and two scrub stages. The feed for this run was concentrated to 84 per cent of HW #4 uranium concentration. Twelve feed additions were used. The product beta was 39 per cent of specification, the gamma 8 per cent. The product contained sufficient ruthenium to estimate that in the above process ruthenium may limit decontamination of four year old waste.

Efforts are continuing to determine the cause of the variable decontamination observed with the Mini. Correlation of the data with batch data, earlier data obtained at ORNL, efficiencies of the scrub stages, and general performance of the extraction unit will be attempted.

#### Recovery of Uranium from Current Metal Waste

A two-cycle solvent extraction process employing a tail-end treatment has been tested for recovering uranium from current metal waste. The flowsheet (IB, HW-23588) was modified by employing two scrub stages in each cycle, and by using 0.05 M HF in the second cycle scrub. The cleanup step for reducing the amount of radio zirconium and niobium was a batch treatment with 1 per cent zeolite. The feed was an off-standard sample of current metal waste (uranium 60 per cent of flowsheet concentration, and radiozirconium low). Beta and gamma specifications were met by the product.





## Purex Studies - Second or Third Plutonium Cycle Employing Reflux

Plutonium from simulated Purex IBP was extracted and refluxed in a separatory funnel battery to produce a product 51 g/l Pu. Feed for this run was 6 M HNO3, 0.210 g/l Pu. The extractant was 15 per cent TBP in CCl<sub>ll</sub> and the strip 0.2 M H<sub>2</sub>SO<sub>ll</sub>. Volumes employed were feed, 40 ml; extractant, 10 ml; strip, 5 ml; and product stream, 0.10 ml. A total of 84 feed additions were made in order to assure attainment of a steady state. The concentration of plutonium in the product fractions remained constant from the 42nd to the 84th feed addition. Low waste losses were observed. Decontamination achieved in this process is under investigation.

Such a process could replace continuous concentration and ion exchange as a means of producing plutonium at 50 g/l.

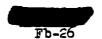
## Chemical Hydrolysis of Diluents for TBP

Preliminary investigation of the combined chemical hydrolysis and temperature stability of some of the heavier than aqueous diluents for TBP has been initiated. Studies at 25°C on systems simulating Purex conditions over 21 days showed maximum decomposition rates of 0.00035 weight per cent/day, after a few days induction period, for carbon tetrachloride and 0.002 weight per cent/day, after an initial 0.05 per cent conversion in three days, for pentachloroethans. The chloride content of the aqueous phases in contact with these streams after 21 days was only 82 mg/l and 1.06 g/l for carbon tetrachloride and pentachloroethane, respectively. Thus, decomposition of these diluents due to chemical reaction in the Purex system is negligible compared to that which occurs due to radiation (see EW-24005).

These studies are being repeated at 65°C over a shorter period to determine whether there is an appreciable temperature coefficient.

## Treatment of Off-Standard Purex Streams

The removal of plutonium, as a contaminant, from a Purex product uranium stream (IIEU) by ion exchange is under study. A distribution ratio of about 800 (Pu per gram resin/Pu per ml solution) was observed when a synthetic IIEU solution containing Pu(IV) was contacted with Dowex-50 resin. Column studies indicate that about 230 bed volumes of synthetic IIEU containing one part plutonium to 10<sup>th</sup> parts uranium can be passed through hydrogen-form Dowex-50 resin (50-100 mesh) at a flow rate of 4 ml/min/cm<sup>2</sup>, before plutonium in the effluent exceeds product uranium specifications (one part plutonium per 10<sup>7</sup> parts uranium). Somewhat higher capacity was shown by laboratory scale columns for feeds lower in plutonium concentration. Capacity at higher flow rate and elution of plutonium from the column and regeneration are currently under study.







## Adsorption of Fission Products from Organic Media

Scouting studies on the use of granular metal or metal powders for adsorbing fission products from organic streams has shown some promise. Lead, iron and zinc adsorb ruthenium activity. Passing TBP phases containing uranium and fission products through an iron column followed by a zeolite column to remove dissolved iron have given ruthenium decontamination factors in excess of 1000 and total gamma, total beta and plutonium decontamination factors of the order of 100. Rare earths present in the organic stream were not adsorbed on metals but appear to be adsorbed on the resin, Dowex-50.

With plant Redox IBU streams, lead did not give as good adsorption as that achieved in the TBP system. Iron adsorbs ruthenium, but also dissolves in the hexone and reprecipitates on standing. If the iron column is followed by a silica gel or zeolite column, the dissolved iron can be removed completely.

#### Adsorption of Fission Products from Metal Recovery RCU

Several experiments have been carried out to investigate the possibility of using adsorption techniques to remove ruthenium, zirconium and niobium from the aqueous RCU stream in the event these fission products should prove limiting in meeting beta and gamma activity specifications for uranium. Whereas iron(II) sulfide removes ruthenium quite effectively, considerable iron is dissolved and considerable reduction of uranium takes place, presumably through the action of dissolved sulfides. The iron dissolved is too high (ca. 7 g/l for a flow rate of 4 ml/min/10 ml bed) to consider the use of cation exchangers for its removal. If, on the otherhand, the RCU stream is saturated with hydrogen sulfide and then passed through a column of silica gel or lead sulfide, good ruthenium decontamination is achieved without dissolving the material of the column. With either material, ruthenium decontamination factors of about 40 were obtained after 24 bed volumes. Furthermore, with the silica gel column, zirconium and niobium decontamination factors of 7 and 10, respectively, were obtained. The capacity of silica gel for ruthenium adsorption from hydrogen sulfide saturated RCU streams is under investigation.

#### Miscellaneous Scavenging Studies

Work was continued during the month on both head-end and tail-end scavenging operations. Several experiments were conducted to determine the decontamination which would occur during a simultaneous scavenging of simulated RCU solutions using silica gel or super filtrol and the precipitation of copper(II) sulfide. Whereas ruthenium decontamination factors of about 200 were obtained when the activity present was spiked-in from Hanford dissolver solution, employing RCU in which the residual activity was mainly cerium and rare earths prepared from six year old waste in the Mini unit, very slight decontamination was obtained.



Preliminary studies were carried out with 2, 3-dimercaptopropanol (British Anti-Lewisite) which suggest that this material is a specific precipitant for ruthenium. Tracer (1 per cent Hanford level) experiments on simulated dissolver solution gave ruthenium decontamination factors of 300 to 1000 when copper(II) ion, silver ion, or inert ruthenium was used as carrier.

Scouting experiments were also carried out with ammonium phosphomolydate, niobium pentoxide and cupferron. Results from these runs, although incomplete, offer little encouragement that any large decontamination factors will be obtained.

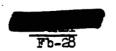
#### 234-5 PROCESS DEVELOPMENT

## Plutonium(IV) Oxalate

Studies with 3BP solution (Redox Run S-2-3-22) have further demonstrated the wide range of acidities (1.5 - 5M HNO3 in the slurry after precipitation) over which plutonium losses of less than five per cent should result. It now appears feasible to process even highly acid (up to 300 moles HNO3 per run) Redox product solution in the 231 Building without the addition of sodium hydroxide, by diluting to the full sixty liter working volume of P-1 or P-2 during the course of the oxalate precipitation. It has also been shown that room temperature is optimum for the strike (precipitation at 15°C gave a slurry which filtered slowly), but that chilling during the digestion period would be beneficial by leading to a reduction in waste losses by as much as fifty per cent.

Nine plutonium(IV) oxalate strikes were made from 3EP solution to confirm and extend Redox coupling data and to supply information concerning possible oxalate supernatant acidities for the benefit of Recuplex design. The following observations have been made: (1) Plutonium losses may be kept below 5 per cent by setting 5 M HNO3 as the upper acid limit for the final strike concentration. At higher acid concentrations, waste losses increased very rapidly, and post-precipitation became appreciable in the combined waste solutions. (2) Plutonium losses in washing were increased from 0.03 g/l to 0.15 g/l as the wash concentration was increased from 2M HNO3 - 0.05 M H<sub>2</sub>C<sub>2</sub>O<sub>4</sub> to 6 M HNO3 - 0.05 M H<sub>2</sub>C<sub>2</sub>O<sub>4</sub>.

Fission Product Decontamination - Laboratory processing of Redox plant product solutions has given the following decontamination factors: gross -10, gross -11 to 16, Zr (Nb) -3 to 7, rare earths -2 for plutonium(IV) oxalate from 3BP (Run-3-68); gross -15, gross -17, Ru -97, Zr (Nb) -3, rare earths -2 to 3 for plutonium peroxide precipitations from 3BP; and gross -1 to 3, gross -1 to 6, Ru -1 to 3, Zr (Nb) -2 to 6, rare earths -0.8 to 8 for plutonium(IV) oxalate precipitation from AT solution made from 3BP.







Analyses show the major part of the activity in 3EP to be caused by ruthenium beta 93 per cent, gamma 82 per cent. In AT solution, Zr (Nb) contributed most of the gamma activity, although that due to ruthenium was appreciable.

## Dry Chemistry and Reduction

Use of Sulfur as a Booster - The substitution of sulfur for iodine in the metal reduction operation has been further investigated in the hope of improving the properties of the slag, with the following results:

- 1. Reducing UF<sub>h</sub> in 45 gram lots (45 gm U), variations of the sulfur-uranium mole ("booster") ratio between 0.25 and 0.60 gave reduction yields ranging from 93.2 to 99.3 per cent and showed the optimum "booster" ratio to be 0.45 for the 45-gram scale.
- 2. Melting points of 1300°C and 1275°C, measured for slags from uranium reductions with "booster" ratios of 0.25 and 0.45, respectively, make it improbable that a eutectic mixture melting below 1000°C exists for this binary salt system within the composition range which could be produced as slag in the plant reduction process.
- 3. Two attempts were made to produce a three component slag with the desired properties. Use of a mixed reductant of calcium and magnesium gave only a 72 per cent yield in a uranium reduction and does not appear of promise, since much of the magnesium distilled out of the reduction charge unreacted. The addition of 0.25 mole CaI<sub>2</sub> per mole of Pu in a 5 gram reduction of PuF<sub>h</sub> gave a slag which was softer and more easily removed from the button, but the yield was only 89.6 per cent, and the deliquescent nature of the CaI<sub>2</sub> would present severe obstacles to plant operation.

Reduction of UF<sub>1</sub> - The deleterious effect of too rapid evacuation of the bomb during the argon purge was demonstrated with a run in which the slag was found to be spewed over the walls of the crucible and a metal yield of only 82.6 per cent realized. Such conditions could be existent in the RMA Line equipment.

Tenacious adhesion of slag to the buttons was not encountered with uranium reductions to the same extent as with plutonium. The addition of 70-58 oxide to a uranium run resulted in an alloy button which separated with no difficulty whatsoever.

70-58 Addition to the Reduction Step - Laboratory-scale (5 gram) reductions of PuFl have shown that addition of a 25 per cent excess of 70-58 oxide to the reduction charge will give the required alloy composition without adversely affecting reduction yields.





Separations Technology Units

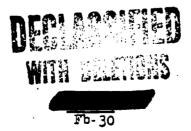
Reductions with iodine as the booster gave good buttons which fell free from the slag, with yields as high as 99 per cent, when 70-58 oxide was added. When 70-58 as the metal, the oxide, or a fluoride of indefinite composition, was added to sulfur-boosted reductions, the button-slag separation was much more difficult than when no 70-58 was present.

#### Recuplex

Neutralization and Disposal of Recuplex CAW - Neutralization of acid in synthetic Recuplex CAW by addition of concentrated NaOH to pH values of 6 to 14+ produced suspensions which did not settle appreciably on standing 430 hours. Addition of 10 per cent by volume of neutralized CAW to first cycle BiPO<sub>1</sub> wastes increased the settling time by a factor of 1.5 and the settled volumes by 15 to 20 per cent. Non-radioactive synthetic CAW having the composition shown on Recuplex Flowsheet #6 was used in this investigation.

#### Experimental Coating

At month's end the first dummy coated with nitrogen gas purges instead of high-vacuum outgassing as preliminary treatment prior to the admission of Ni(CO)4 was completed but the coating was not completely evaluated.





#### 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

R. L. Moore and H. R. Schmidt

# TITLE

The Use of 2,3-dimercaptopropanol (British Anti-Lewisite) as a Precipitant for Metallic Ions to Scavenge Ruthenium.

R. B. Richards, Manager Separations Technology Unit

5/8/52

RBR:fmf

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SECURITY INFORMATION

APPLIED RESEARCH UNIT

APRIL, 1952

# VISITORS AND BUSINESS TRIPS

- A. F. Scott, Reed Institute, Portland, Oregon, consulted here April 22-23 in regard to an analytical research subcontract.
- G. W. Ogden, Baird Associates, Cambridge, Massachusetts, was here April 29-30 adjusting and calibrating the Baird water analyzer.
- I. D. Thomas spent April 21-25 at the N. A. Phillips Corporation, Mt. Vernon, N. Y., attending an x-ray diffraction conference.
- W. J. Ozeroff spent April 7-9 at LAMS discussing critical mass and nuclear safety problems. On April 11 he attended a conference at ANL on Project Bluenose.
- R. E. Kupel visited the General Electric Company, AGT Division, Lockland, Ohio, on April 8 and the ANP Project, Oak Ridge, Tennessee, on April 9 for the purpose of personal interviews.



- W. B. Farrand and D. E. Davenport spent April 10, 11 and 14 at the North American Aviation Company, Downing, California, discussing the water boiler reactor.
- H. R. Schmidt spent April 9-10 at ANL discussing analytical problems associated with Project Bluenose.
- M. J. Sanderson spent April 15 at Washington, D. C., attending an AEC X-ray Diffraction Conference. April 17 was spent at ANL discussing diffraction work.
- F. E. Kruesi was at KAPL April 14-15 for the purpose of personal interviews.

#### PHYSICS

#### Critical Mass Studies

The effect of changes of hydrogen density in a plutonium-water reactor on the age of neutrons and therefore on the critical size is not well understood. In studying this effect a formula has been found which relates the critical thermal utilization (f) of a reactor to the density of hydrogen in the same reactor. It is found experimentally that (f) is a linear function of hydrogen density. It is further found experimentally that (f) is a linear function of the geometric buckling as given by the diffusion theory. From these two facts one may write the following formula for the critical thermal utilization:

$$f = (38.897 - 0.2494 \text{ H}) \text{ B} + 2.743 (10)^{-3} \text{ H} + 0.2221.$$

From this formula, which gives the thermal utilization as a function of the geometry and moderation of a plutonium reactor, one deduces the following formula for the mass:

$$M = V(239) (10)^{\frac{1}{4}}$$
 
$$= V(239) (10)^{\frac{1}{4}}$$
 
$$= V(239) (6.02)(1-w)$$
 
$$= V(239) (10)^{\frac{1}{4}}$$
 
$$=$$

where v = volume liters

c= cross section in barns
w = fraction of Pu<sup>240</sup> in fuel.

Cross sections used in deriving this empirical formula are

 $O(Pu^{239}) = 1150 \text{ barns}$ 

 $\sigma(Pu^{240}) = 1000 \text{ barns}$ 

Hydrogen = .32 barns

ONitrogen = 1.7 barns

This formula represents the data for tamped spheres very well. It further represents the data for bare spheres and for tamped cylinders to within three per cent.

A report covering the entire activities of the P-ll project has been prepared and will be issued in May.



#### Exponential Experiments

The diffusion length of the Savannah River graphite has been calculated by means of the image theory to be 63 cm. The same data has been recalculated using a harmonic correction technique. The result of this calculation is 61 cm. The sigma pile measurements for the same graphite have given the diffusion length of 54.5 cm. A wide disagreement of this latter value indicates that the effect of holes has not been taken into account correctly.

Two further measurements of the buckling of the dry seven inch lattice have been obtained using gold foils of different thicknesses. The results 99.5 and 99.8 microbucks are in very good agreement with each other and with the average value of all detectors of about 100 microbucks.

An experiment was performed to see whether or not slug quality as measured in the Test Pile had a measurable effect on flux distribution measurements. Twenty slugs with an average dih of 0.001 were loaded into the central region of the pile and flux measurements were made in their vicinity. This measure was repeated when the twenty slugs were replaced by slugs having an average dih of -0.030. The results agreed to within 0.2 per cent which was within the statistics of the measurement. From this it was concluded that there is no detectable variation in slug quality as far as the exponential experiments are concerned.

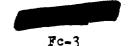
A standard Hanford slug with a cobalt monitor has been placed for exposure in B Pile for a period of approximately three months. After exposure the slug will be sectioned and the plutonium production measured as a function of the radius. This will furnish information to be used in connection with determinations of the resonance escape probability.

The values of the buckling of the lattices investigated thus far have been re-evaluated following the discovery that the background corrections were incorrectly made. The results of the evaluation are negligible in all cases except the seven inch lattice. Here it is found that the long standing disagreement between the indium foils and the BF<sub>2</sub> counters has been largely resolved. The new values are given in the table below:

Lattice Size	Buckling Without Water	Buckling With Water
7"	$75.5 \pm 0.5 \times 10^{-6} \text{ cm}^{-2}$	$71.8 \pm 0.6 \times 10^{-6} \text{cm}^{-2}$
7.5" 8"	$75.5 \pm 0.5 \times 10^{-6} \text{cm}^{-2}$ $100 \pm 2 \times 10^{-6} \text{cm}^{-2}$ $112.6 \pm 0.5 \times 10^{-6} \text{cm}^{-2}$ $115.2 \pm 0.4 \times 10^{-6} \text{cm}^{-2}$	83.6 ± 0.2 x 10-6cm-2 78.6 ± 0.6 x 10-6cm-2
8.375"	117.2 = 0.4 x 10 -cm -	(0.0 ± 0.0 X TO GW

# Lattice Design

Experiments were conducted to observe the effect of temperature on the xenon generator slug and to determine the gamma ray energy spectrum of the effluent gases for shielding purposes. The results in both cases are inconclusive. In the case of the temperature effect, the results are that a rise from ambient pile temperature  $200^{\circ}$  C changes the yield of xenon from 3 x  $10^{\circ}$  atoms to about 5 x  $10^{\circ}$  atoms. Various experimental difficulties which were encountered, however, do not allow us to place confidence in these



figures. The gamma ray activity of effluent gases is largely due to the production of iodine. It is planned in the final experiment to hold this iodine by means of a charcoal trap within the pile shield. Frevious tests have indicated that when 10<sup>15</sup> molecules of iodine were swept through the charcoal column containing activated commut charcoal at 100°C, at least 99.9 per cent of the iodine had been held up. However, later experiments in the 305 Building indicate that when 109 molecules of iodine are carried through a charcoal column, the hold up is negligible. A repetition of the test with 10<sup>18</sup> molecules of iodine is now being planned.

A new xenon generator slug has been completed this month. It is planned to make two extraction runs with this new slug in the Test Pile. In the first run the slug will not be heat treated. Previous to the second run the slug will be heated at about 200° C for a week. In this way it is hoped to obtain data on the effect of heat treatment on xenon yield. These data should make possible a more accurate calculation of the yield to be expected from the enriched generator slug when used in a 105 pile. In addition, the assembly of this slug has provided experience which should prove valuable in the assembly of the enriched generator.

An attempt was made to detect the angular correlation in the xenon  $^{135}$  beta-gamma decay. Coincidence counts were made when the two detectors were placed at various angles with respect to one another. When absolute disintegration rates are calculated for the various angles the only differences in these rates should be due to angular correlation. The preliminary results are as follows: with the counters separated by 90° the rate was about  $3.06 \times 10^4$  disintegrations per minute. When the counters were separated by  $180^\circ$  the rates were about  $3.22 \times 10^4$  disintegrations per minute. Since the statistics for these counts were  $\pm$  .04 x  $10^4$  it would appear that the coefficient was of the order of -5 per cent. This experiment will be repeated with xenon samples obtained at the DR Pile.

An attempt is being made to determine the conversion efficiency of the H-10 load. The total production of tritium is available from the P-10 operation data. Contact is being made with the American Cyanamid Company at Arco, Idaho in order to obtain accurate extraction data for use in estimating the 25 burnout.

The instrumentation for the magnetic spectrometer has been completed and the instrument is in operating condition.

Preparation of the range spectrometer which will be used to determine the energy spectrum of high energy neutrons at DR Pile is nearing completion.

#### Operating Pile Physics

It is proposed to determine the dry and wet critical sizes of C Pile while the pile atmosphere is air. After the wet critical size determination, CO<sub>2</sub> will be introduced and the change in reactivity as the air is replaced will be measured. In this way information can be obtained which would (1) indicate the amount of air displaced by CO<sub>2</sub> as a function of time after the CO<sub>2</sub> is introduced, (2) assist in resolving the difference between critical buckling measured at DR Pile startup and the buckling measured in the exponential pile, and (3) indicate the poisoning effect of air in the graphite.





The heat generation in the central tube of the ink facility has been calculated and is  $8.5 \pm 1.0$  kilowatts. Of this 72 per cent appears in the outer annulus.

Temperatures to be expected in the steel-concrete interface of the Brockhaven shield were computed for shield thickness of 2.5 feet and 5.0 feet, and for values of the heat transfer coefficient in the range 0 to 0.1 and for an infinite value.

#### METALLURGY

## Metallurgy of Uranium

Fabrication. The metallurgical evaluation of uranium rods which were experimentally rolled to determine the optimum rolling conditions for the Fernald Feed Production Center was continued. Previous data showed that the degree of preferred orientation decreased as the rolling temperature was increased. Additional samples now have been received from Simonds Saw and Steel Company which represent successive reductions for each roll pass. The X-ray data obtained to date have not been sufficient to establish a correlation between the amount of deformation and the degree of preferred orientation.

An X-Ray Diffraction Conference was held in Washington, D. C. for the purpose of discussing the different X-ray diffraction methods which are being used at the various AEC sites to determine the orientation of uranium. The X-ray methods used vary considerably from site to site but the results from each of the methods are in close agreement regarding the crystallographic orientation which exists in uranium rods.

A recent Chalk River report (NEI-16) presents data in addition to that previously reported at Hanford, to indicate that the crystallographic orientation about the axis of a rolled uranium rod is not symmetric; this non-symmetry differs from rod to rod. Samples of the Lackawanna No. 8 rolling are being studied to investigate whether or not this non-symmetry exists in these rods.

Uranium Alloys. Four uranium-chromium ingots with different nominal chromium contents ranging from 0.3 to 0.6 atomic per cent were cast and isothermally heat treated to obtain maximum grain refinement. Macro- and microscopic examination of both longitudinal and transverse sections of the ingots revealed a uniform grain size of 0.05 mm for the three ingots having the greater alloy content and a 0.09 mm grain size in the other ingot.

The mechanical properties of six alpha rolled, beta heat treated uranium-chromium alloys were determined using a 0.250 inch ASTM tensile specimen. An increase from 30,000 to 77,000 psi in the yield strength and from 80,000 to 131,000 psi in the ultimate strength of the alloys was noted as the chromium content was increased from 0.00 to 0.50 atomic per cent.

Two cast uranium-aluminum alloy ingots containing 1.3 and 2.2 atomic per cent aluminum were heated in the gamma phase and water quenched. Severe cracking of the castings occurred. Microscopic examination showed considerable grain refinement (grain diameter = 0.05 mm) for both alloys, although excessive amounts of a second phase (UAl<sub>2</sub>) was





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present in both heat treated ingots. These results indicate that further reductions in the aluminum content may be desirable.

Mechanical and Physical Properties. A specimen holder for obtaining the electrical resistivity of slug-size uranium pieces was built and tested. Results to date show no important difference in the electrical resistivity of transformed and untransformed uranium pieces. The average resistivity for the uranium tested was found to be 31 microhm-cm. This study will be continued to investigate the effects of orientation and internal stress.

Data previously reported showed that the Metals Comparator was capable of detecting the per cent transformation of the uranium slugs from the same rod. Recent efforts have been directed towards the wide variations in the results which exist between different rods. Freliminary indications are that this discrepancy is caused by either varying grain orientations, beta phase cooling rates, or internal stresses. Eighteen heta transformed uranium pieces have been sent to Battelle Memorial Institute for creep studies. This program is outlined in Document HW-23896.

# Radiometallurgy

Irradiated Slug Studies. Partial classification of the twelve ruptured slugs that occurred during the month showed the majority of those classified to be a simple cap type rupture.

The examination of ruptured and normally discharged slugs at the Westinghouse Atomic Power Division hot Laboratories is continuing without having a technical representative of the Hanford Works present. A preliminary report from WAFD should be available soon. Results obtained to date are not much different from those being accumulated at Hanford. Seven ruptured slugs were given a cursory examination in the 111-B radiometallurgy laboratory during the month. Since the causes of rupture are not obvious at this time, several interim reports will be issued to indicate the scope of this examination.



Two caps and two sections of cans which were mechanically removed from normally discharged pieces containing "denuts" are being examined. The aluminum can wall thickness at the junction of the section of the can and the cap was found to be approximately 30 mils. A report is in progress.

Equipment. Further experiments have been conducted with the double crystal X-ray spectrometer in which a curved zinc crystal has been used in the second diffracting position. Results indicate that for some purposes this type of crystal is superior to aluminum. Consequently, to add versatility to the completed spectrometer, the final design will provide means of interchanging these crystals.

A remote operating, abrasive cut-off machine was placed in service in the lll-B laboratory during the month. Several successful cuts of a two-year cooled slug were made without incident.

The motorized home canning device for canning radioactive samples prior to storing in the dry storage unit has been completed. Two irradiated uranium wafers have been canned without incident.

The slug stripping equipment has been dismantled and a new model designed to overcome previous difficulties. Construction is about 40 per cent complete. Chemical means of obtaining small sections of can wall were attempted without success.

A micro-calorimeter has been designed and fabricated to evaluate the self heating of irradiated samples prior to thermal conductivity measurements. Attempts to make measurements in the III-B laboratory water basin were abandoned because of breakage of the glass equipment. The equipment has been re-evaluated for making the measurement in air.

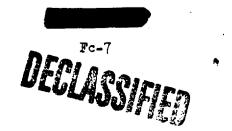
NTA alpha track emulsions are being evaluated for making diffusion analysis of the Al-Si: Al components in the canned slugs. By converting the alpha track counts into uranium or plutonium concentrations, it may be possible to obtain the diffusion constants.

An evaluation of the Bergsman micro-hardness tester was made using a  $34.6 \pm 1.5$  Rock-well B hardness test block. Calculations from D.P.H. values indicated that the Bergsman gave Rockwell B hardness readings from 36 to 48. On the same sample the Tukon micro-hardness tester gave  $R_{\rm R}$  values from 28 to 34.

#### Plant Services

The investigation to find a suitable material which can be substituted for the 347 stainless steel presented being used for slug tongs and baskets in the Al-Si canning baths was continued. Experiments with oxidized low carbon steel were unsuccessful since the oxide coating was removed by abrasion of the slugs.

Large samples of heavy aggregate concrete to be used as shielding material were tested in compression for Project Engineering. It was found that the concrete containing steel balls was superior in strength to concrete containing punched steel wafers.





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An examination was begun to determine the seriousness, as well as the cause of the magnetic change which occurs in the 1.8 per cent boron austenitic stainless steel to be used for the vertical safety rods in "C" Pile. Observations during fabrication showed that the steel undergoes both volume and magnetic changes when the steel is taken to low temperature. Results to date indicate that: (1) those rod sections which have become strongly magnetic will be dismensionally stable under pile operating temperatures, (2) the tendency for the steel to become magnetic at low temperatures is greatly influenced by the boron-nickel-chromium ratio, and (3) the magnetic change is accompanied by the formation of martensite.

## ANALYTICAL RESEARCH

#### Analytical Techniques

An instrument has been assembled in such a manner that the output from a gamma scintillation probe is fed into a pulse analyzer, similar to that being employed for alpha energy analysis. The device gives fair separation of pulses of different energies and thus operates as a gamma spectrometer. It promises many advantages for the identification and determination of gamma emitters and is being exploited particularly for the determination of fission products in process uranium product. If the cut-off is set so as to essentially exclude all U-237 gamma rays, only 30% recovery of ruthenium activity is obtained. Modifications of the probe and the geometry are expected to yield improvements.

It was previously reported that high levels of beta radiation decrease the alpha counting rate obtained with instruments presently employed at Hanford. For this reason different types of alpha counting chambers are being evaluated to select one that minimizes this interference. Evaluation is accomplished by adjusting the voltage to the mid-point of the plateau and determining the energy distribution of the chamber response with an alpha energy analyzer. The Borkowski type chamber yields a stronger output signal than the ASP chamber and affords a better separation of the alpha pulse output from the background "hash". Since this background hash is magnified by beta radiations, the observation suggests that the Borkowski chamber is less subject to beta interference. This effect proved to be true in that 4 x 100 beta d/m reduced the counting rate of a plutonium disc by 3% in the ASP chamber and only 1% in the Borkowski chamber.

An investigation of acid determination has been carried out according to a procedure in which the acid is extracted from an aqueous sample by dioctyl methylamine in butanol and then combined with ethyl alcohol and titrated manually with the coulometric titrator, using an indicator endpoint. Quantitative recovery of acid from aluminum sclutions is obtained if the solution is treated with fluoride to precipitate aluminum and with sulfate, which behaves as a weak complexing agent for aluminum in acid medium. Moderate amounts of dichromate interfere only slightly, but the technique is not satisfactory with uranium-containing solutions. Solutions containing uranium and phosphate, such as the Metal Recovery RAF, may be titrated to a sharp endpoint in either aquecus or aqueous-alcohol medium. The endpoint is not stoichiometric, however, and attempts to study the behavior of different acid phosphates in this system gave discordant results that do not define the reactions involved.



Research with the hollow cathode excitation source for the spectrometric determination of nonmetallic elements has been reactivated, after having been set aside for several months to meet more urgent problems. The unit has been assembled so that the excitation is fed into the direct reading spectrometer. Employing a heliumargon gas medium, a copper cathode, and sodium fluoride sample, it was found that the copper electrode is not attacked, that a discharge current of about 300 milliamps, and a gas pressure of about 2.5 mm. are optimum. The Toepler pump, installed to provide gas circulation, has not proved satisfactory because of its pulsating nature, so that it is desirable to replace it with a more efficient diffusion pump.

A biological research problem requires the determination of small concentrations of heavy water in normal water and a procedure is being developed for making this determination mass spectrometrically. The range of interest is 0.05 to 1%  $D_2$ 0. The literature recommends the determination be carried out by allowing the sample to equilibrate with hydrogen placed in contact with it, using platinum black as a catalyst. Although the literature reports equilibration to be complete in one hour, a considerably longer period was observed experimentally.

#### In-Line Analysis

Following development of the design of a gamma scintillation counter that will allow continuous in-line monitoring of gamma activity in waste concentrate streams, consideration was given to a suitable remote control mechanism. The unit designed and placed on order for construction involves a revolving turnet that successively carries the scintillation probe to a standard source, a blank station, and the sample pipe. Since it is desirable to have a compact unit, the readings obtained at the standard and blank stations will include a small component proportional to the sample activity. Provision was made to allow for automatic correction of this component. Likewise, provision was made to allow for correction of the background distortion caused by the pipe at the sample station. The unit will be installed on a jumper connected to the process line and will be controlled remotely.

Several tests have continued in a study designed to determine the effects of radiation on pH electrode systems. Over a ten day period electrodes immersed in an acid plutonium solution yielded a response that varied only 0.2 pH units. Similar electrodes were immersed in a cold simulated waste solution of pH 10 and were irradiated externally with a Co-60 source of 66,000 R/hr. The pH was recorded continuously for 15 days, and although the electrodes discolored slightly, a variation of only 0.3 pH was observed. Other electrodes were sealed into a container of simulated waste and were lowered into the 100-F Area catch basin adjacent to freshly pushed slugs. Over a nine day period with an exposure of about 107 R, the glass was rendered nearlyopaque, but a drift of only -0.35 pH was observed. Other electrodes were immersed in waste solution from the tank farm and in acid blend tank solution. Difficulties with the pH meters were encountered in these cases, and failure of the calomel cells was observed because of drainage of the calomel buffer solution through the liquid junction, or because of introduction of activity into the cell. A preliminary conclusion from the tests completed to date indicates that reasonably satisfactory performance may be expected from commercially available glass electrodes and that prowision must be made to protect the calomel cells.





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The trace of automatic recording moisture analyzers continued along two lines. The infrared moisture analyzer purchased for Pile Technology in-pile studies of graphite reaction has not given satisfactory operation even after its return from the vendor. A representative of the vendor visited Hanford at month's end and indicated that the difficulty resulted from incomplete development work on his part, stating his belief that only minor difficulties presently interfere with acceptable operation. In parallel with this work, an Aminco resistance hygrometer was further tested and subsequently installed to monitor moisture in the 105 H pile exit gas. The unit operates in parallel with two dev point units and a thermoconductivity apparatus. The Aminco unit has the greater sensitivity and the more rapid response, and is apparently not adversely affected by radiation; it is quite temperature sensitive and has shown some tendency to drift.

#### Redox - Metal Recovery Analyses

By means of qualitative spectrophotometric analyses, an impurity in ANN reagent that may have been responsible for emulsion formation in the Redox columns was identified as o-nitro cresol. The material was extracted from ANN reagent and from several process solutions, and was observed to have indicator properties in that it was colorless in acid solution and yellow in basic solution. This suggested that it was a nitro phenol type compound that may have been extracted from the cresol phosphate plasticizer in the Tygon lining the ANN storage tanks. The material showed sharp absorption bands at 255 and 335 mu. o-nitro cresol and material extracted by pure ANN from Tygon exhibited identical absorption patterns. A very small quantity of material, identified by odor as butyric acid, was extracted from the process ANN solution as well as from the Buna N rubber cement employed to hold the Tygon liners in place.

Responsibility for isotopic uranium analyses of UO<sub>3</sub> product was transferred to Analytical Service after analyzing Lots 6 through 25. It is of interest to note that Lots 17 through 25 fell in the range 0.64% to 0.652% U-235, averaging 0.64%. Five samples (Lots 13-17) were analyzed for check purposes at the Argonne Laboratory; in one case Hanford results were 0.016% low, as indicated by the Argonne and Hanford reanalyzes. In the other four cases there was no bias, and the average difference was 0.004%.

In cooperation with Manufacturing personnel, an improved turbidimetric device was designed to allow continuous monitoring of acidified waste metal storage solution. Parallel laboratory tests were made with a recently received, highly sensitive reflectance meter and served to define the formation of turbidity very exactly.

A micro diffusion technique was developed for the determination of chloride in dissolver solutions and was made available for various separations research problems. The test was not applicable to solutions containing nitrite or to organic solutions, and further attention is being given to make it more universal.

By reason of its high volatility, ruthenium is lost during the preparation of sample discs in the determination of fission product activities in UNH solution. Testing of a technique employed at KAFL showed that ruthenium loss during conversion of the liquid sample to solid UO<sub>3</sub> (severe heat lamp treatment) may be prevented by adding hydrazine to the sample before heating.



Modifications or changes have been made in several control analyses. The specific surface apparatus was improved in minor respects; a second stand-by coulometric titrator was delivered and installed; and the Karl Fischer determination of water in UO3 was replaced by an ignition-absorption method. The latter replacement was necessary because it was observed that the original method did not extract all the water from the sample.

#### ANALYTICAL SERVICE

#### Work Volume Statistics

The following tabulation shows the source and volume statistics for samples on which analyses were completed:

•	March			April
	Samples	Determinations	Samples	Determinations
Process Control - 234-5	378	3,048	664	6,401
Process Control - Metal Preparati		1,424	639	3,357
Research & Development Programs	1,812	5,180	2,702	6,683
Water Quality, P-13	555	2,082	505	1,654
Redox, TBP, UO3	1,623	4,484	1,671	5,362
Process Resgents	338	515	475	1,037
Essential Materials	48	793	42	341
Special Samples	383	. 2 <b>,</b> 942	25 <del>9</del>	1,693
P-10 Control	848	8,480		
Totals	6,586	28,948	6,957	26,528

#### 100-300 Area Services

Since the P-10 program was discontinued and the mass spectrometers made available for other programs, samples have been received from groups throughout the plant. Different components and combinations of components than found in P-10 samples have made extensive calibration of the mass spectrometers necessary in several instances. The Consolidated-Nier instrument has been calibrated for Xe and Kr and is ready for use in analyzing samples containing these gases. In conjunction with the Analytical Research Sub-Unit a study of isotopic equilibration in a heavy water hydrogen atmosphere system is being made. This is in preparation for analysis of samples from animal tissue to be submitted by the Radiological Sciences Department.

The P-13 equipment has not operated this month. Training of the P-13 operators in the methods and techniques of the gas analyzer has continued, and it is expected that this function will be turned over to Pile Technology Unit on May 1, 1952.

Facility modifications have been completed in the 185-F Laboratory and the water quality work formerly done in 100-H and 100-D Laboratories has been transferred to this location.

The processing of AEC scrap uranium during the month has increased the number of analytical determinations made in support of the billet program by a factor of 10. Due to



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lack of information concerning this material, a sample from each billet is being analyzed routinely and volfram is being determined on composites of every 10 billet samples.

In support of investigations of emulsion formation in the Redox columns, a number of samples have been received and analyzed both spectrochemically and by wet methods. A number of components have been determined, but the bulk of the requests were for phosphates. A residue from an IAS sample was found to be chiefly  $Al_2O_5$  which was insoluble in acid and alkali solutions but dissolved after a  $Na_2CO_3$  fusion.

The problem of chloride in determination in aqueous and organic phases of an IAF/IAS - 30% TBP in CCl<sub>k</sub> system exposed to high radiation continued during the month. The decomposition of CCl<sub>k</sub> is quite striking, for example, at the end of seven days exposure at about 2.5 x 100 R/hr., as much as 23 g. Cl<sup>-</sup>/l was found in the aqueous phase and 3.5 g. Cl<sup>-</sup>/l in the corresponding organic phase. Other exidation states of chlorine may be present.

All equipment is on hand for the determination of fluoride ion in plutonium fluoride salts and one chemist is devoting full time to preparing the glove box for this determination.

# 234-5 Building Laboratory

Effective April 21 the 234-5 Building Laboratory reverted to a two-shift seven-day coverage schedule to provide better spectrographic service, reduce costs and provide increased analytical service without additional personnel.

Investigation of the carrier distillation spectrographic method was continued. In trial analyses, precision on process metal samples was improved by using a modified method employing 4% carrier, 5 second pre arc and 55 second total arc time. The films are easier to read and can be used for densitometric determinations when desired. A revision of the standard method embodying the above changes has been submitted for approval. Adoption of the improved method will justify abandonment of the present costly practice of determining a number of impurity elements by both the cupferrom and carrier distillation procedures. Only calcium, lanthanum and beryllium need be determined by the cupferrom procedure.





The recovery of plutenium from laboratory waste solutions continued during the month with a total of 117.209 units returned to process and another 136.3 units awaiting return to process.

In an investigation of the critical mass problems associated—with the processing and storage of laboratory waste, it was recommended (Document HW-23798) that cadmium strips be placed between the storage bottles. A storage frame is being constructed so that cadmium sheets .C2 inches thick may be used between the storage bottles.

## 222-5 Building Laboratory

On April 1, an 8.9 gm/cm<sup>2</sup> total lead absorber was adopted for the gamma counting of Redox final uranium (E-12)-samples. It is believed that this absorber will almost completely eliminate the U-237 gamma interference found previously in using a 5.2 gm/cm<sup>2</sup> absorber. A complete discussion of the problems associated with both beta and gamma determinations in Redox UNH is contained in Document HW-24070.

Considerable difficulty was experienced during the month with the volumetric sulfate procedure (SV-la) used for the determination of sulfur in UO<sub>3</sub>. It was determined — that the hypo-phosphorous acid used to reduce the soluble sulfur compounds to hydrogen sulfide had lost its strength. Until full strength reducing acid is again available from Stores a lead reduction column is being used.

Special analyses performed during the month included the determination of chloride — in dissolver solution by means of a micro diffusion cell and subsequent spectrophotometric measurement. The presence of nitrite in the samples caused temporary difficulty, but was overcome by destroying the nitrite with hydrazine sulfate prior to the diffusion.

Complete recalibration of the X-ray Photometer for aqueous samples was completed during the month and new charts covering the range of 1.5 g/l U to 56 g/l U have been prepared. Freshly prepared reference standard solutions of 5, 15, 36, and 40 g/l U are used in conjunction with the new charts. The instrument is tested daily with standard uranium solutions covering the ranges of uranium concentration of plant samples. Recalibration of the instrument for organic samples is in process and should be completed early in May.

In anticipation of TBP start-up, a series of synthetic TBP type samples were analyzed in the laboratory for specific gravity, nitric acid, uranium, phosphate, sulfate, and sodium. The precision and accuracy of the phosphate, sulfate, and nitric acid determination were poor, while the tests for specific gravity, uranium, and sodium vere good. Continued method adaptation and development efforts will be directed toward improving the determinations that gave poor precision and accuracy.

The synthetic sample program will continue to be used for method training purposes until all shift personnel are thoroughly trained on TBP analytical methods.

Precision data are currently being accumulated for all routine Redox samples. Data on the precision of the average for the starting and final Redox solutions will be listed in this series of report as the data become available from the Statistics Unit.







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Applied Research Unit

There were no significant differences between the March and April values which are tabulated below:

Sample	Determination	Percentage of Average (99% Confidence Level)
H-7	TA ·	Data not available
E=3	AT	± 0.86
E=17	Ar	± 1.3
E-12	Ŭ	± 0.56

#### Methods Control

Activities of Methods Control personnel in direct support of a laboratory are reported under the applicable laboratory heading.

# Safety and Special Hazards Control

There were no incidents of general air contamination in the 222-S Building Laboratory such as occurred in March; however, one 24 hour air sample taken in Room 2-H indicated greater than assault mask-level (3 x 10-11 ug/sc) for plutonium. One high air sample occurred in the 234-5 Building Laboratory as a result of a ruptured rubber glove on the carrier distillation gloved box in Room 132.

The thirty-six cases of skin contamination occurring in 222-S Building during the month were all of low level and have been traced to breaking down bayonet sampling equipment without cotton or leather gloves and removing "skin" gloves without assistance. Remedial measures have been taken.

Contamination of an employee's hair to the extent of 40,000 d/m occurred as a result of a sample spill in Hood #1, Room 135, 234-5 Building. A 5 ml. volumetric flask containing active solution which was being held with curved tweezers fell a distance of approximately 1/2". The resulting jar apparently spread the contamination to the employee's hair. Two washings with soap and water reduced the level of contamination to less than 500 d/m.

## INVENTIONS

All Applied Research 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 April. 1952 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(s)

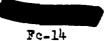
None

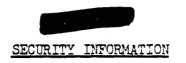
Title

Signed:

Manager, Applied Research Unit

FWA: Ltc





# TECHNICAL SERVICES UNIT

#### APRIL 1952

5-7-52

#### VISITORS & BUSINESS TRIPS

There were no off-site visitors sponsored by this Unit during the month.

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

- P.F.X. Dunigan spent April 7 8 at the S. Blickman Co., Inc., plant at Weehawken, N.J., reviewing the designs and fabrication techniques to be employed in the manufacture of hoods for the Radiochemistry Building.
- C.G. Stevenson spent April 24 in Seattle, Washington, attending a meeting of the Washington State Library Commission.

#### ORGANIZATION AND PERSONNEL

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

	March	April
Laboratory Engineering Technical Information	86 85	84 82
Administrative	_3	3
Unit Totals	174	169

# LABORATORY ENGINEERING SERVICES

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

Work volume statistics for the Mechanical Shops are as follows:







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		Mar	ch	April
	Customer Unit or Program	No. of Jobs	Man- Hours	No. of Man- Jobs Hours
Work Done on Jobs Completed	P-10 Pile Technology Separations Tech. Applied Research Technical Services Others Sub-Totals	2 40 36 14 16 12 120	46 633 758 194 238 245 2114	0 0 36 419 38 633 22 701 14 345 12 149 122 2247
Work Done on Jobs Not Completed	Pile Technology Separations Tech. Applied Research Technical Services Others Sub-Totals	10 10 8 11 2 41	258 257 145 545 192 1397	10 309 7 206 8 265 13 492 5 185 43 1457
Total Work Done			3511	3704
Work Backlog:				Man-Hours To Complete
Jobs Started	Pile Technology Separations Tech. Applied Research Technical Services Others Sub-Totals	10 10 8 11 2 41	180 228 236 621 8 1273	10 280 7 128 8 115 13 1032 5 52 43 1607
Jobs Not Yet Started	Pile Technology Separations Tech. Applied Research Technical Services Others Sub-Totals	12 8 8 2 2 2 32	342 139 331 123 612 1547	10 279 4 124 1 21 4 28 1 10 20 462
Total Backlog			2820	2069

The shop is operating on a 2069 man-hour backlog, which represents 11 working days with the present forces.

The following work was completed for the Technical Units as indicated:

# Applied Research

A total of eight revised air stirrers were completed. Four were fabricated entirely of stainless steel, while the other four were made of Dural. The



shop recommended that the inlet diameter be increased, the outlet diameter decreased, and the overall height cut in half in order to improve the operating characteristics. The revised stirrers will operate on a 3 p.s.i. air pressure as compared with the 8 p.s.i. previously required. In addition, the operating speed of the stirrer can be more easily and accurately adjusted. With the improved design, the units can be throttled from zero to their maximum angular velocity or desired operating speed with ease and accuracy. The Dural stirrers were fabricated in approximately one—third the time required for stainless steel fabrication. The use of Teflon as a bearing material in these stirrers was investigated. Results were highly unsatisfactory due to the high thermal expansion of Teflon which caused the bearings to sieze after a few seconds of high speed operation.

Fabrication of twenty-four vacuum trap release assemblies as replacement items for similar units in Building 222-S was started. This job requires the fitting of glass and metal parts and the precision bending of each of three groups of stainless steel tubes. A bending jig was designed and built for each type of tube, resulting in increased accuracy of bends and higher production. Fabrication also required heliarc welding of special stainless steel plugs on either side of the neoprene stopper, without damage to the stopper. These units are being fabricated on a fill-in basis.

#### Pile Technology

Fabrication of a traverse boat and extra traverse heads for the measurement of vertical deflection of the horizontal rod thimbles was started. The traverse heads have platinum contacts accurately set for contact with the mercury pool. The boat will be inserted into a horizontal rod thimble as a part of a manometer system. Freedom of operation and good alignment will be essential to insure that the unit will not bind or otherwise become stuck inside the thimble.

A thermal cycling unit for process slugs is being fabricated to simulate pile conditions by alternate heating with an induction coil and quenching in water. This work is being done in connection with the new canning program. The device consists of a Dural ring which is driven by a gear train and motor. The ring will be supported by seven bearing assemblies and will hold Transite boats containing the slugs undergoing tests. The driven ring, due to its size, was machined in the 200-W Area Maintenance Shop. The entire unit will be mounted on a Dural topped table, which also will support the induction heating coil and the water spray tank.

# Separations Technology

A new multiple unit extractor, which supersedes the design of the previous shop-developed counter current batch extractor, was completed. Extremely high quality workmanship was required, since all critical dimensions were held to less than +0.001 in the  $8^{m} \times 3/16^{m}$  diameter stainless steel extraction rod. To insure efficient and accurate extraction between aqueous and organic phases, all burrs and scratches on the rods were removed. The unit has been delivered and preliminary tests have indicated that prototype models will be required at Hanford as well as at other AEC sites.



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A special column water jacket, equipped with Homolite windows, was fabricated. Past experience in fabricating this material proved of value on this order. The original design of the window seals was revised so that the thermal expansion of Homolite could be absorbed while maintaining a tight seal. The interior of the jacket was highly polished to promote uniform heat transfer and to insure ease of decontamination. Accurately spaced mounting brackets were installed inside the jacket for subsequent mounting of laboratory glassware.

The development and fabrication of a constant flow pump was started and progress to date is satisfactory. The work is being done in connection with the Alpha Pulse Column. The unit required fabrication of a right and left hand diamond threaded driving rod with a constant lead. This rod will be used to advance a pump piston at a constant speed and quickly reverse the direction of motion of the piston at the end of the stroke. This will insure a relatively constant pump delivery volume. The unusual diamond thread and the square shoulder required very accurate workmanship.

# Technical Services

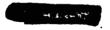
Two rotating finger tong mechanisms for remote operations behind shielding barricades were completed. The tongs are capable of  $700^{\circ}$  rotation and are activated by flexible steel cables inside a Dural tube. Some trouble was experienced in bending the tubing. The spring, as designed, did not function properly and was subsequently revised. As fabrication progressed, prints were marked for "as-built" dimensions and acceptable tolerances.

A new type of pneumatically operated valve was developed, utilizing the seat and body from a Skinner Valve equipped with an air adapter. The gaskets, packings and plunger seat on the liquid side of the valve were made of fluorothene, while stainless steel was used in all other parts where corrosion might be objectionable. The valve is normally closed by spring pressure and may be easily and accurately operated by admitting air to the pneumatic chamber. A stainless steel bellows was adapted to house the plunger and give the necessary flexibility and corrosion resistance. A second valve, of an improved design recommended by the shop, has been ordered and is nearing completion.

Several .035" diameter x 1/4" long iron wires were encased in Teflon. Two techniques were investigated. The first method was to press the wires into a sheet of Teflon and bond another sheet over them. This method was successful but yielded rather rough, cumbersome stirring bars. In the second and more successful method, the wires were encased in short sections of .050" OD x .035" ID Teflon tubing, after which small Teflon end-caps were placed in the ends of the tube. The capped tube was placed in a suitable mold and heated to 400° C. for one hour. The finished stirrers were removed, trimmed and tested. To date, the Teflon coating has not broken down in continued immersion in strong nitric acid solution.

# Glass Shops (Buildings 3706 and 222-S)

Work volume statistics for the Glass Shop (exclusive of P-10 services) are as follows:





Jobs Completed	March	April
New	112	79
Revisions	12	19
Repairs	9	7
Totals	<u> 133</u>	105

Six of the above jobs required quartz fabrication. At the present time the shop has a backlog of 20 jobs which will require about seven man-days to complete. This includes three jobs which require quartz fabrication. Five coulometer cells for Analytical Research were of special interest since fabrication was very difficult because of the extreme compactness of the completed cell.

On April 23 the new Litton Model K glassworking lathe was received and installed in the Building 3706 Glass Shop. The small glassworking lathe was moved to the boron-free quartz room, where it completes the equipment requirements for this new facility. Unfortunately, only a partial shipment of the accessories for the Model K lathe were received. The vendor estimates that from two to three weeks will be required before all of the necessary accessories will be delivered.

At month end, P-10 requirements for glassblowing service were discontinued. One glassblower helper continued on assignment to the 108-B Building to provide service to Pile Technology Corrosion study facilities at this location, and to Analytical Services laboratories in the 100 Areas.

## Equipment Development

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

	March		Apri	1
	Engineering	Drafting*	Engineering	Drafting** & Misc.
Pile Technology Engineering	41	375	18	268
Pile Materials	27	217	- 56	241
P-10	0	55	0	3
Pile Fuels	0	0	55	216
Separations Technology Development	83	338	112	455
Research	158	361	224	668
Applied Research Analytical Service Analytical Research Metallurgy Research	380 78 84	851 26 0	140 19 109	385 157 7
Technical Services Laboratory Engineering	457	517	617	1065
Laboratory Equipment Develop- ment (RDA #TC-5)  Totals	204 1512	100 <u>4</u> 3744	306 1656	77 <u>1</u> 4236



- \* Includes 1512 hours of drafting time.
- \*\* Includes 1656 hours of drafting time.

Work loads associated with Redox Analytical Laboratory dropped substantially during April, while those associated with Chemical Research and Chemical Development increased.

The following work was done for the various customer groups, as indicated:

#### Pile Engineering

Engineering assistance was given on drafting of the resistance heating equipment, in-pile heater test, channel apparatus, slug weighing apparatus, electric furnace, sample side and top racks, spacer discs and holder for special request charges, and various charts and graphs.

#### Pile Fuels

Engineering assistance was given on the design of the bicrystal furnace and X-ray cassettes; and on the drafting of the schematic prototype component assembly machine, thermal shock unit, and drawings of cans and slugs.

#### Pile Materials

Engineering assistance was given on the design of the tube reduction unit; and the drafting of the film test apparatus, notice cards, tongs, flow diagram of the 50-tube mock-up, test sample No. 2, dichromate-free slug crater, boroscope rack and drive, and various graphs and charts.

#### P-10

Assistance was given on ink work on a photograph.

#### Chemical Development

Assistance was given on the design of equipment for a junior cave; and liaison and design work on the multicurie cell head end equipment.

#### Chemical Research

Work continued on the outfitting of the multicurie cells of Building 222-S. Additional assistance was given on design of the spinning band column support, column water jacket, multiple unit extractor, various equipment for brick piles, and a specialized falling drop apparatus. Assistance was given on drafting of the multiple unit extractor, air pulse generator, aluminum mount carrier, osmometer, counter current batch extractor, and sample entry blister.

#### Analytical Services

Work continued on outfitting and testing the gloved boxes and analytical line in Building 222-S. Assistance was given on drafting of the falling drop apparatus, sampler handle, plastic bayonet, chuck and case for 16-place magnetic stirrer, primary sampler, standard micro-pipet, 5 cc. syringe and slurp line adapter. A mock-up was made on a simplified primary sampling assembly for Building 222-S, and working components were being developed.



# Analytical Research

Assistance was given on design and drafting of the 8-place stirrer,

# Laboratory Equipment Development (RDA #TC-5)

Considerable progress was made on the vapor ionization recorder. Alpha backgrounds in normal air at Building 222-S were being recorded and detection chamber operation was studied. The twin-channel amplifiers were stabilized and matched. The development of the integrator-recorder system was started.

Experimental decontamination chamber operation at Building 222-S continued with the decontamination of numerous pieces of equipment and some gloved boxes. Contamination control was excellent. The hot sandblaster was undergoing revision.

Several CWS and roughing filters were removed from the hoods of the Bldg, 222-S main decontamination room and were dismantled and examined. One of the inexpensive fiber-glass filters previously developed by Laboratory Equipment Development was installed for test and comparison. The new filter costs about \$20 compared to about \$67 for the CWS filter, and could, therefore, save \$6,000 to \$15,000 per year in the operation of Building 222-3

## New Laboratory Planning

# Redox Analytical and Plant Assistance Laboratory, Proj. C-187-E. Phase II

Construction on Phase II included the installation of the air conditioning ductwork above the hung ceiling, the placement of the fluorescent light fixtures, and the location of channels for the partitions.

# Mechanical Development Bldg. Proj. C-406

The preliminary design and specifications submitted by the Dix Steel Co. for the interior finishing (Phase II) of the Mechanical Development Bldg. were reviewed by General Electric and the Commission and returned unapproved. It was agreed at a meeting between Dix Steel Co. and General Electric Co. representatives on April 1, 1952, that the drawings and specifications would require more detailed and specific information in order to insure an adequate facility as well as supplyample bid information for a lump sum contractor.

It now appears that the scheduled completion date of May 7, 1952, for design of the interior will not be met by the Dix Steel Co.

# Radiochemistry Bldg., Proj. C-381

Structural steel work, including the welding, is essentially complete. The basement concrete slab is being poured in sections. At month end it was about 20% complete. Robertson "Q" decking has been placed on approximately 40% of the first floor. Miscallaneous ironwork such as pipe hangers is being installed.

Requisitions for the uninstalled equipment are still being prepared.





# Outside Facilities and Utilities, Proj C-304

Construction work on this project continues ahead of schedule.

Badge House - The badge house is essentially complete except for the badge counters and certain finishing work.

340 Building and Retention Basins - The concrete work is about 60% complete.

Piping - The water lines to 340 Building have been placed. The water line tie-in with the power plant is nearly complete.

Other - Power poles are being set.

The roads surrounding the parking lot have been paved and the lot surfaced. The east end has not been graded pending a decision on removal of dirt from the excavation of the Radiochemistry Building.

#### Radiometallurgy Eldg., Proj. C-385

Approximately 5% of the structural steel work remains to be completed for this building. The structural steel for the canyon area, decontamination and storage area has been completed; however, a minor amount of structural steel work remains to be completed for the office and machine shop area. The main concrete floor slab is complete and satisfactory progress is being made on forming of the basement slab. Good progress was made during the month on the electrical services for the "hot cell" panels.

The fabricator of the Dry Storage Cell, Farrel Birmingham, has advised that they are unable to meet the promised delivery date of May, 1952, for this item but hope to deliver during the latter half of June, 1952. The construction contractor has not stated whether this delivery will affect the construction schedule.

Farrel Birmingham Co., fabricator of the High and Intermediate Level Cells, requested assistance in regard to a satisfactory test to be performed on the 10½" and 15" thick Meehanite panels for these cells to insure that no void greater than 2% of the panel thickness will be present. Several methods of pre-testing the "Meehanite" castings before machining were suggested, but the use of a 22 Mev. Betatron located at Watervliet Arsenal, Watervliet, New York, appeared to be the most suitable for meeting the requirements. Preliminary arrangements were made, with the assistance of the Commission. Watervliet personnel indicated that adequate facilities were available in their shop and testing could proceed as soon as the panels were made available to them. The panels will be transported from Ansonia, Connecticut, to Watervliet as soon as detailed arrangements are completed between Farrel Birmingham and the Arsenal.

#### Pile Technology Bldg., Proj. C-414

Structural steel has not arrived on the plant site and field construction has halted awaiting arrival of this steel.





# Library and Files Bldg. . Proj. C-421

The roofing and siding is virtually complete. The concrete work is better than 99% complete. Ventilating ductwork is about 10% complete. The elevator shaft and metal staircase are installed. A sixty-day contract extention has been granted.

#### Building Services

#### Building 3706

Material control, work order control and miscellaneous services activity is summarized as follows:

	<u>March</u>	<u>April</u>
Purchase Requisitions		
Total number processed	91	118
Number requiring special expediting	91	80
Number requiring emergency handling	12	6
Work Orders Processed	54	85
Miscellaneous Services		
Number store orders processed	1013	993
Store Stock requests	0.	0
Office furniture requests	-6	7
Office machines sent in for repair	21	16
Precious metal transactions	19	29
Trips to 200-W for contaminated waste disposal	12	17
Photographic work requests	0	22
Expediting trips	0	37

In conjunction with the recent reorganization within the Technical Section, approximately thirty offices and laboratories in the 3703 and 3706 Buildings were interchanged during the month. Analytical Services-Methods Adaptation moved from Building 3706 to the 222-S and 234-5 Buildings, 200-W Area. Telephone and Transportation personnel were called out or Saturday in order to accomplish the moves expeditiously and economically. One office and a portion of a laboratory were remodeled to provide Physics Research laboratories for the Applied Research Unit.

A portion of the concrete patio east of the 3706 Building was fenced and posted as a Radiation Danger Zone. Several stainless steel 55-gallon drums have been located inside the danger zone and approximately 200 gallons of low level Pu (5-15 /ug/l.) waste per month will be jetted into the drums. These drums will be transported to the 222-S Building for disposal. Laboratory Services is preparing a job procedure for the approval of the Radiations Monitoring Unit. Formerly, one gallon containers of low level waste were transported to the 200-W Area periodically by the Laboratory Services regulated pick-up truck. It is estimated that this change to the larger drums will save approximately \$200 per month in labor and transportation.



A scheduled expediting service was established to serve all Technical personnel in the 300 Area. This service has eliminated many single, duplicate and triplicate trips formerly made by all Technical units to and from the 700 and outer areas, and thus has resulted in a saving to all units. This service is now requiring one man full time.

At the request of the Process Engineering Unit, 2200 feet of movie film was taken of the construction operations at the 105-C facility. Other pictures will be required as construction is completed.

#### Building 222-S

Laboratory Services - 222-S Activity may be summarised as follows:

	March	April
Material dispensed, 222-S stockroom Withdrawals (customer orders) Emergency trips (pick up and delivery) Work orders processed Storage "hot" waste transfer (219 & 202-S), gallons	\$4,198 0 14 45 4,717	\$4,446 1,969 18 44 4,966

Air samples taken in the decontamination laboratories on March 21 and 22 were above tolerance limits. It was determined that the steam "slurping" jets caused the contamination and preventive measures were taken to eliminate the problem. Immediately following this action, a detailed check of all waste lines revealed that the hand cleaning sinks in both laboratories, previously checked as being connected to the Retention Waste, are connected to Crib Waste. Simple U traps were installed to correct this condition and air samples taken since their installation are near negative levels.

The crib and hot waste vent  $(\frac{1}{2}n)$  pipe) was also found to be discharging radioactivity to the atmosphere. Surveys with portable instruments indicated an increase during operation of the "slurping" jets in the decontamination laboratories. As a temporary corrective measure, an assault mask filter cannister has been attached to the vent line pending design and fabrication of a filter unit. A tentative cartridge design has been submitted to Equipment Development for their comment and possible improvement.

Conversion of three Kellex type samplers to the standard bayonet type was accomplished by the Separations Section during April. This conversion resulted in a daily reduction of approximately one-half (14) of the Kellex doorstops received by Decontamination for cleaning. The increased number of bayonet sampling equipment pieces are easily moved through the cleaning process. Conversion of the remaining samplers is expected to be completed during June. This will eliminate the heaviest and most difficult piece of equipment now routinely cleaned by Decontamination personnel.

A thermally hot exhaust duct from the vacuum pumps located in the tunnel and running through the wall and ceiling of the sample receiving rooms was determined to be the cause of excessively high (80° to 85° F.) room temperature. The duct has been insulated with a resultant reduction in room temperature to standard building conditions. DECLASSIFIED



# TECHNICAL INFORMATION SERVICES

### Plant Library

Library work volume and book statistics were as follows:

	March	<u>April</u>
Number of books on order	277	391
Number of books fully cataloged	191	280
Number of bound periodicals processed but not fully cataloged	176	77
Famphlets added to the pamphlet file	42	. 70
Miscellaneous material received, processed and		. , ,
routed (including reprints)	17	60
Books and periodicals circulated	4,516	4,591
Unclassified reports processed	394	295
Unclassified reports circulated	302	376
Reference services rendered Inter-library loans	1,435	1,636
Photostats from cff-site	46 46	33 33
New periodical titles added to Kardex	19	10
	-/	
Main Library W-10 Library	108-F Library	Total
Number of books 8,705 3,973	488	13,166
Number of bound periodicals 5,365 0	662	5,950
Totals 14,070 3,973	1,150	19,193

Work in the Plant Library proceeded routinely during the period, with the upward curve of book and periodical circulation continuing. A recent study, in fact, indicates that both circulation and reference work have substantially doubled during the last three years. Reference work continued as usual, with some representative questions as follows:

Bakelite pipe fittings

Effects of earthquake vibrations on structures

Ultraviolet absorption spectra of 4 nitro o-crescl

Uses of Thickol

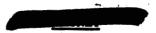
Washington state regulations on number and location of drinking fountains in office buildings

Determination of trichloracetic acid in urine

Free energy of formation of Ca-I2

Directory of foreign universities
Coating of baking pans with fluorethene
Dictionary of mechanical terms
Composition of type metals
Grounding of electro-surgical instruments
Euilding code on plywood construction

Trapezium distortion in cathode ray tube images





Extra heavy liquids for the sink-float process Rust prevention with Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> Method of plating U<sub>238</sub> on aluminum Methods for decontamination of concrete Types and mechanisms of air and steam driven jet pumps Method of permanently blackening copper Regalvanizing process for welded steel Brazing of gems and ceramic materials to metals Radiographic testing procedures Design of storage tanks for liquid radioactive wastes

As in the past, the Library continued to carry on extensive correspondence in locating requested material from widely scattered sources. A sampling of such material is given, together with the source of origin:

Iowa State College Engineering Experimental Station Crystal Chemistry and Ceramics

Wyoming National Resources Research Institute
Petroleum Desulfurization and Annotated Bibliography

United States Bureau of Mines
Manometric Precision for Determining Vapor Pressure of Aviation Gasoline

American Society for Testing Materials Symposium of Flame Spectroscopy

California Institute of Technology, Pasadena, California Early Detection of Bacterial Growth

Benson Laboratories, Pittsburgh, Pennsylvania Survey on Cost of Absenteeism

Chief, Patent Office, Washington, D.C. Text of Patent Application 255,501

Henry Brutcher, Altadena, California
Translation of "Hardening of Boron Containing Austenitic Chrome Nickel
Steel During Tempering" from Archiv fur das Eisenhuttenwesen.

The Library has been at work for some time on the writing of an Organization and Policy Guide setting forth the Company policy in regard to memberships in trade and professional associations and/or societies, and a procedure for handling membership applications made by Hanford personnel. The Guide will establish in the Library a central file of membership information. Copies of the proposed Guide were submitted to the General Electric Company Subscriptions Committee in Schenectady and a number of valuable suggestions were received from the Secretary. These have been incorporated into a re-write of the Guide and at month end a final draft had been completed.

meeting was held with representatives of the AFC and GE Purchasing in an effort eliminate delays in the receipt of periodicals and business services purchased

Fd-12



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on Government schedule. The delays were traced to the use of a standard address on all requisitions and arrangements were worked out to have the Hanford recipient's name added to the standard address so that the material could go directly to his office. It is anticipated that this will substantially eliminate delays in the delivery of library items purchased through the Government.

As initially reported last month, the Information Sub-Unit has been compiling a book order from Hanford for surplus copies of the National Nuclear Energy Series made available to Project scientists by the publishers at a substantial discount. The initial order was for over \$500 and subsequently two further orders were made up. At month end the first book order had been received and the books distributed.

A substantially complete file of the Engineering Index was added to the Library's holdings. This invaluable reference tool, which has been out-of-print for many years, was made available to scientists by the Johnson Reprint Corporation. It is anticipated that it will be extremely useful at Hanford, since it indexes many sources of information (State and Engineering Experimental Station publications, house organs, controlled circulation periodicals, foreign engineering journals, etc.) not available elsewhere.

After receiving bids from a number of prominent book brokers, a contract was awarded to Stechert-Hefner in New York City covering the Library's book purchases for the year. Stechert-Hefner offered substantial discounts as follows: 10% on scientific and technical books published in the United States; net to 10% on publications of learned societies and non-profit organizations; 20% on general trade publications; and out-of-print and foreign material at net. Inasmuch as Stechert-Hefner is the largest American dealer in technical books, with extensive European connections, it is fortunate that their bid was the lowest. It is anticipated that they will continue to give the excellent service which they rendered last year.

The Library was fortunate in securing a well-qualified and trained Reference Librarian for a long-standing vacancy. The candidate will report for work sometime in June.

#### Classified Files

Work volume statistics for the Classified Files were as follows:

·	March	<u>April</u>	
Documents routed and discharged	22,882	20,007	
Documents issued	7,834	7,812	
Registered packages prepared for off-site	327	256	
Inter-area mail sent via transmittal	29,967	30,880	
Holders of classified documents whose files were			
inventoried:			
(a) Because of normal perpetual inventory			
procedure	1		
(b) Because of transfer of work assignment	6	9	
(c) Because of termination	6	· 3	





HW-24337 Del .

	March	April
Inventory reductions:		*
Copies of documents destroyed	2,675	1,118
Copies of documents downgraded to:		
RESTRICTED	165	0
CONFIDENTIAL	2	0
Copies of documents declassified	552	0
Classified documents located which were unaccounted		
for in previous inventory	27	38
Standard storage cartons of material retired to the		
Records Center:		
Unclassified and Official Use Only	0	0
Classified	20	0
Off-site originated reports requested by Hanford personnel	126	57
Hanford originated reports requested by off-site personnel	145	117

Work volume for the period continued normal, with a continuing rise in the volume of inter-area classified mail. In this connection, a five-part manifold form, developed at the suggestion of Procedures Analysis, has been ordered to relieve the situation. No inventory reduction was accomplished during the period due to the unexpected resignation of the Records Analyst, who had been selecting documents for review by the Non-Technical Review Board.

A representative sampling of reference questions worked on by Classified Files personnel follows:

TBP Flowsheet No. 4

Reactor Process Committee Meeting Minutes from 1950 to present

NNES volume on graphite production piles

Last 3 quarterly reports from the Metallurgy Section, Argonne National Laboratory

Methods for decontamination of equipment in the 200 Areas

Method for zirconium-hafnium separation

Effect of alloying uranium with molybdenum on the grain structure

Outline of work being carried on at ARCO

Formula for the chelating agent, Dagmar II

Analytical manuals, both master and operating copies, for the 100 & 200 Areas

General survey of information on slug coatings

Shielding properties of zinc bromide

Electrodeposition of zirconium

Tensile properties of sheet zirconium at room and elevated temperatures

Work done by Argonne National Laboratory on thermal cycling of uranium

Catalog of highly purified uranium isotopes

Determination of hypophosphoric acid

General information on pile process tubes

Original developmental work on frost test

Distribution was made of the initial sections of the manual on office procedures being written for Classified Files personnel. This comprises Sections 1, 2, 5, 7, and 9 and additional sections will be distributed as completed. It appeared practical to handle the matter in this way, since the complete write-up for all jobs will not be completed for some months. Work is also going forward on the manual being written for Plant stenographers on the preparation and care of classified documents. A re-write by Public Relations of the original draft has been reviewed and some changes suggested.

Fd-14

A proposal which would permit the local SF Accountability Station to handle and control classified snipping form SF-101 was studied and accepted. This is in line with similar changes taking place at other AEC installations. The new procedure would eliminate the Classified Files as an intermediary in a transaction normally taking place directly between SF Accountability Stations. Classified Files will train personnel at the Hanford SF Accountability Office to handle this work, using the same procedures and forms as the Classified Files. Classified Files will also make periodic audits of the records maintained. It is anticipated that the change can be accomplished by June 2, 1952, and immediately thereafter the Classified Files will retire its holdings of this document.

Considerable time was spent during the month in carrying forward the project for establishing a centralized control of classified photographs. The matter has become urgent due to the fact that the local AEC Public Relations Office, which has been handling this function for a number of years, has decided to discontinue performing this function for General Electric. An OPG was drafted, reviewed, and approved by a committee representing Security and the area photographic facilities. Classified Files also developed the necessary procedures, job descriptions, etc., necessary to properly handle the mechanics of the operation. At month end a decision had not been reached as to which Hanford department would be responsible for the function in the future.

Further progress was made in eliminating discrepancies in procedures between the 760 Classified Files and the 300 and 700 Area Files. Notification was also sent to personnel of the Design and Project Sections regarding major changes which would affect them directly. These involved (a) being able to borrow documents directly from any of the three Classified Files, and to return them to whichever was most convenient, (b) following plant-wide copy coverage requirements, particularly regarding the "yellow" file, (c) elimination of the HDC and INDC report numbering systems, (d) assignment of document numbers to Unclassified and RESTRICTED documents of significant scientific or engineering content. In addition, one of the Technical Abstracters has been assigned full time to the 760 Files unit so that information in their reports may be incorporated into the site Reports Index as rapidly as possible.

Simultaneously, the use of the GEH report numbering system for incoming documents was discontinued in the 300 and 700 Area Classified Files. In the future, incoming documents which bear a satisfactory identification number will not be assigned an incoming local number characteristic of this site (GEH number). This expedient will be used only with incoming documents which do not carry a satisfactory identification number. Although this will complicate the filing problem somewhat, it is anticipated that the reduction of time spent in preparing cross-reference, and the elimination of confusion resulting from documents with dual numbers, will more than offset this. Furthermore, it appears certain that referencing will be simplified.

An important problem which required resolution during the month concerned the disposition, in view of the reassignment of these contracts to AEC, of the classified records created by Vitro Corporation and Charles T. Main while under contract to General Electric. As prime contractor, these classified records are the responsibility of General Electric, Hanford, and an important factor in any





reassignment of contracts. A meeting was finally held with representatives of the Design Section. Project Section, Nucleonics Office in Schenectady, the Records Committee, the Records Management Program, Reproduction, Classified Files, Legal Department, etc., where basic policies were laid down in this matter and plans made to implement them.

#### Reports and Abstracting

The work statistics for the group were as follows:

	March	ADTIL
Formal Research and Development Reports issued	8	7
Formal reports in process	3	. 8
Reports abstracted	613	727

Work is proceeding satisfactorily on a number of bibliographies in process. The bibliography on "Coating. Canning and Testing Methods," which will be definitive in this area, has been hampered somewhat by delays in obtaining some of the early Metallurgical Laboratory reports. The graphite bibliography is proceeding as scheduled, and "Concretes for Radiation Shielding" is in press. Satisfactory progress is being made on a revision of HW-17195, "Dimensional Instability of Uranium," which will bring this important bibliography up to date. In addition, a literature search is underway on non-destructive testing methods applicable to be canning problem.

As indicated above, a Technical Abstracter has been assigned full time to the 760 Classified Files to incorporate significant technical documents issued there into the site reports index. Work is being concentrated at present in those reports originated by the Reactor Section and Separations Technology Section. This assignment will probably require five to six months.

Time was also expended during the month in drafting introductions to two documents "Official Security Codes" and Glossary of Hanford Terminology being prepared for publication in connection with Technical Information's responsibilities for Plant codes. These introductions will define Hanford's policy in the use of codes, a field in which there is need for clarification. At month end these had been completed and forwarded for review by interested Managers.

#### 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 covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

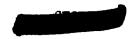
# <u>Inventors</u> <u>Title</u>

J.F. Gifford, R.E. Hanford Slave Manipulator revised to include a remote Field & F.L. Backus plug-in feature on the tool end.

1192067

Signed J.W. Underwood, Unit Manage

FD-16



#### DESIGN SECTION

# 4.0. ......

#### VISITORS AND BUSINESS TRIPS

- R. K. Patterson, C. C. Starratt, A. J. Curtis, E. G. Mackay, W. C. Disbrow, E. F. Hall and H. R. Feldmann, C. T. Main, Inc., visited Richland April 1-10 to discuss design criteria for new water plant.
- R. A. Lorraine and H. Huntley, Schene stady, visited here April 28-30 in connection with power reactor studies.
- E. L. Knoedler, Sneppard T. Powell, visited here April 3-8 to discuss water plant study.
- P. J. Selak, C. Hawes and J. Finke, AEC office, Wilmington, Delaware, visited Hanford April 9 to discuss design bases for separations plants.
- C. Thornton and E. A. Sheppard, AEC office, Washington D. C., visited Hanford April 16 and 18 to discuss design bases for separations plants.
- R. Hughey, AEC office, San Francisco, visited Hanford April 21 and 23 to discuss design bases for separations plants.
- H. Crandall, E. Haven, A. C. Miller, R. McCarter, and L. Michaels, California Research Corporation, Livermore Project, visited Hanford April 21 and 23 to discuss design bases for separations plants.
- C. W. George and D. E. Nolte, Schenectady, visited here April 8-11 to review General Engineering Laboratory assistance to Hanford.
- S. M. Stoller, Vitro Corporation, visited Richland March 31 through April 4 to discuss Vitro separations plant studies.
- E. P. Peabody visited General Electric Company, Seattle, April 21 to consult with engineers.
- C. L. Cobler visited Instrument Laboratories Inc., Seattle, April 8 to inspect saran-type chambers.
- B. E. Woodward visited Industrial Instrument Supply, Spokane, April 24 to inspect central thermocouple panel.
- J. L. Weeks visited Los Alamos April 28-29 to obtain information on 234-5 equipment development.
- M. H. Russ visited C. T. Main, Boston, April 28-30 to discuss design criteria for water plant.
- L. E. Foster, H. J. Bellarts, E. L. Reed, T. F. Robinson and J. J. Griffith visited Washington State College, Pullman, April 22, 28, 29, and 30 to witness tests on downcomer.



HW-24337 Del

L. E. Foster and Carol Sege visited the University of Washington, Seattle, April 10-11 to initiate test on amaphite.

# CRGANIZATION AND PERSCHNEL

Personnel Statistics:	March 31		April 30			
•	Exempt	Non- Exempt	Total	Exempt	Non- Exempt	Total
Design Management Process Engineering Unit Design Flanning Unit Design Engineering Unit	4 44 9 60	2 10 9 18	6 54 18 78	4 45 8 62	2 11 9 17	6 56 17 79
Total Section Personnel	117	39	156	119	39	158
Technical Graduates (Rotations	ar)	19	19	_	21	21
TCTAL.	117	58	175	119	60	179

Accessions = 8 Separations = 4

# ENERAL

Design Section engineering effort for April was distributed approximately 40% to research and development, 37% to reactor design and 23% to other design projects.

# DESIGN DEVELOPMENT

#### Statistics:

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

	Man Months Expended	% of Total
RDA-DC-3 Reactor Development RDA-DC-4 Separations - Design RDA-DC-5 Metallurgy RDA-DC-6 Water Plant RDA-DC-7 Separations Process RDA-DC-9 234-5 Standards	25.1 12.9  9.2 10.1 3.1 4.0	39.0 20.0 14.3 15.7 4.8 6.2
TOTAL	64.4	100.0



# Accomplishments:

RDA-DC-3 - Engineering Development Studies to Improve Design Bases for Future 100 Area Production Familities

The Prepakt development program for the heavy aggregate concrete shield is progressing satisfactorily. Test specimens were made by the Prepakt method for several types of grouts and course aggregates. Several types of grouts have been tested for pumpability and flow paths charted. One set of attenuation slabs was completed and is curing at the present time.

A test crate of the type used on the reactor front and rear face is being fabricated at the Puget Sound Naval Shipyard and work is almost complete. The General Engineering Laboratory has completed the basic design of an electromagnetic ball conveyor and started fabrication of a test model.

Preliminary hydraulic tests on a 1/5 scale model energy absorber-type downcomer were conducted at Washington State College April 22. The tests indicated that the new downcomer design will prove satisfactory.

Studies are under way to obtain a suitable substitute for the potassium tetraborate in the "ink" system. It has been found that this material becomes highly radio-active, and it is hoped that a more suitable material can be found. A study is in progress to determine the desirability of reclaiming potassium tetraborate.

# RDA-DC-4 - Engineering Development Studies to Improve Design for Future Separations Facilities

Progress continued on the general building arrangement studies. Cost estimates with supporting drawings for seven alternate building arrangements and five alternate capacities have been completed to aid in the determination of the most economical plant size from overall plant capacity requirements. This information has been issued in documents HDC-2563 and HW-24182.

Six alternate building cross sections accommodating pulse column contactors have been developed showing various methods of reducing the distance through which remote maintenance must be accomplished. These alternates, shown on drawings SK-2-1281, SK-2-1282 and SK-2-1284, have been issued for comment.

Approval has been received from the A.E.C. to negotiate a contract with the du Mont Laboratories for the rental of studio-type television equipment for remote maintenance test work at Hanford. Improvements to the monocular optics presently used in existing canyon buildings have been initiated. Delivery of the necessary lenses is expected in September with full scale field tests scheduled for late September or early October.



is Vitro Componstion has momoleted the following studies, thus fulfilling its commonst for engine-winz assistance on the pessance and development program.

- 1. Open Canyon Arrangements.
- 2. Pulse Meananism Simpliffication.
- 3. Dimensional Tolerances for Remote Equipment.
- 4. Fabrication of "Stripped Down" Remote Vessels.
- 5. Remotely Maintained Rotating Equipment.

Final reports on these studies are being reviewed and evaluated for incorporation into project scope locuments for the proposed expansion program.

The evaluation and comparison of (1) the mixer settler and pulse column type contactors, (2) the jet orifice flow system and pump-value-rotameter control system are continuing. Completion of the study will be based on a separations plant capacity of 200 tons (avg.) of uranium per month.

Instrument Engineering Flow Diagrams for the proposed separations facility are approximately 90% complete. Graphic panel layouts are being revised to reflect presently planned process requirements.

Engineering data were prepared and transmitted to Argonne National Laboratories for comments concerning the application of book swing and twist control devices or remote crane operation.

RDA-DC-5 - Design Development Mechanization of the 300 Area Slug and Component Preparation Facilities

The development work assigned to the General Engineering Laboratory has been completed and recommendations were submitted in document GEL-019. This report describes a proposed machine for mechanical alug canning and quenching.

RDA-DC-6 - Process Water Cooling System Including Retention Basin, Design Development

Results of the study conducted by C. T. Main, Inc. (HDC-2118) were transmitted to the Design Section. This report presented an outline of the design of two separate and independent water plants for two 1300-MW reactors at the Coyota Rapids Site, each being capable of providing 100,000 to 140,000 gpm. The principal features of the new plants will be as follows:

- 1. The layout has been developed for efficient construction and operation of a dual area.
  - 2. The water treatment process will be the "alum activated-silica process".
- 3. The pumping system design will permit variable flow and variable pressure operation.





- 4. The plant installed capacity will be 140,000 gpm with the exception of the filtration plant. The design capacity of the filter plant is 100,000 gpm at a flow rate of 3.9 gallons per sq. ft. per minuta. If filtration rates as high as 5.2 gpm are possible, the plant will operate at 140,000 gpm without further expansion. Provision will be made for future expansion of the filter plant if necessary.
- 5. The emergency system is "all electric". Emergency power will be provided by three oil-fired boilers of 40,000 lb/hr steam capacity and three 3500-KW turbo-generators (one set is a spare) for each plant.
- 6. The design provides for a higher degree of bombing protection. The "Control Building", containing boilers, other power equipment, switchgear and critical valves is a Class I bomb resistant structure. Inter-related process buildings have been consolidated in a small target area. The clearwells have been placed underground. A central tunnel of Class I construction containing the critical piping and electrical connections will be provided.
  - 7. A "batch" system will be provided for retention of effluent process water.
- 8. The 181 Building pump house will contain out-door equipment. A housing structure will not be required.
- 9. Each 190 Building pumping system will consist of six 10,000 hp motors driving 25,000 gpm pumps and controlled by liquid rheostats.
- 10. Provisions are made for the utilization of heat in the effluent water for the heating of 100 Area buildings.
  - 11. High tanks are not provided.

### RDA-DC-7 Separations Process Engineering, Expansion and Improvement

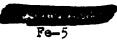
Further progress was made in the refinement of the Purex Process engineering flow diagrams. Specific activity was directed at the aqueous make-up section. Review for the coordination of the engineering flow diagrams was continued.

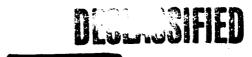
Work on the Recuplem Process design criteria was continued following the approval of the project proposal by the Appropriations and Budget Committee.

Two alternate designs for waste storage facilities have been proposed for estimate comparison with the existing design. In addition, all of these are being examined for adaptability to the addition of equipment for heat removal during the radioactive decay of the major fraction of the active isotopes.

Work was completed on establishing the recommended capacity for a new Purex-type separations plant for processing Program "X" irradiated uranium at the 600 MMD/T enrichment level.







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# \_DC\_9 \_ Product Puriffication and Matal Fabrication Equipment

Work on the plateshim fabrication equipment development program progressed with further investigation of RM Line operational difficulties. A list of proposed design development tems has been bransmitted to the Working Committee for comment.

### Standards

Standaris Approved:

A-3-7 Fire Hydrants -

Standards sugmitted to the HW Standards Committee and returned to the subcommittees for approval:

- E-5-12 Encasement for underground conduit crossing railroads and highways
- E-5-13 Encasement for underground conduit crossing railroads and highways, Type A Encasement
- R-5-14 Encasement for underground conduit crossing railroads and highways, Type B Encasement

Chain Gates

The preparation of the following HW Design Guides is approximately 90% complete.

- 1. Process and Service Piping
- 2. Valves and Valve Equivalent
- 3. Packing and Gaskat Materials

### DESIGN ENGINEERING

### Statistics:

Design Engineering services were performed on projects, engineering orders design orders and specifications during April. The total number of engineering man months expended in the several categories follows:

The second section of the sect	Man Months Expended	% of Total
Reactor Projects Major Projects - Other than Reactor Minor Projects and Engineering Orders	59.6 r 13.5 23.7	61.6 13.9 24.5
TOTAL	96.8	100.0





The effect of the month's accomplishment on the design work load of the Design Engineering Unit in the semeral categories is given below.

DESIGN ENGINEERING UNIT ENGINEERING MAN MONTHS Backlog Time Backlog Orders Start of Received Spent End of Month Menth During During Month Month 217 194 Projects - Reactor 16 10.7 45 40 Other Major Projects and Engineering Orders 265 5 17.4 253\* Research and Development 98 94\* Standards and Specifications 159 12 16.7 Miscellaneous Projects, Work Orders and Design Orders 779 33 71.8 740 TCTALS

The backlog in the Design Engineering Unit is scheduled according to the following table:

	AVERAGE MAN MONTHS						
	May	June	July	Aug.	Sept.	Oct.	Balance
Projects - Reactor	20	17	16	17	17	18	89
Other Major Projects and Engineering Orders	18	13	8	3	3	0	0
Research and Development	16	18	18	18	18	18	147
Standards and Specifics- tions	5	5	7	. 7	. 7	7	56
Miscellaneous Projects, Work Orders and Design	11	11	11	11	. 11	11	88
Orders Available for Future Orders	0	6	10	15	17	19	-

Present Total Backlog is distributed over the five engineering branches in terms of man-months backlog as follows:

Civil and Archi	itectural	150
Mechanical		220
Blechmical		195
Instrument		120
Standards		55
	TOTAL	740

\*Backlog extended through Fiscal Year 1951



Design Session

# POOR QUALITY ORIGINAL

HW-21337-Wel

### Assemplianments:

Authorization in the amount (\$170,730 (Worst Amounting SED-LEE) was received to probess with the testign of MM Reaction (D-192), a Wesser Flant at 1 other 100 Area facilities, and a deparations Plant and associated facilities.

The responsibility for timpical direction of the C. I. Main Contrast for the preliminary design of two new water plants and auxiliary area facilities was assigned to the Design Section. C. To Main was advised to proceed with the preparation of project scope and the preparation of requisitions covering orbitical procurement items.

# mile Serenda (2007)

Process Unit Design was concentrated on the preparation of design criteria for the Ball 3-K system, horizontal soi system, vertical rod system, process tube assembly, minks system, thermal shield, biological shield, process piping, downcomer, and moderator. Design of the 105 Building and services has been retarded by three major changes; modification of structural steel design as a result of bomb blast studies, modification of the electronal power system for compatibility with the water plant, and a mange in the heating system from steam to not water. On the basis of completed frawings, assism to the reactor advanced 4.5% furing April to 11.5%. The 105 Building design was 17.5% complete at the month's end, an increase of 7.5%.

# C-191-B - 100-3 Area Production Fightistee

ign for the 105-0 famility is essentially complete. Two process unit, four metratation, and five Metal Examination Famility drawings remain to be approved.

# C-131 - Bic-Assay Laboratory

Work was done on the preparation of a revised project proposal at the request of the Radiological Sciences Department. Design rescoping in the form of marked prints for estimating was completed and transmitted to the Project Section April 21, 1952.

# C-112 - Additional Shielding 2745-A Building

Final design was started April 21, 1952, and is approximately 50% complete. The drawings and specifications are scheduled for completion June 1, 1952.

# C-177 - New 102-B Area Automatic Piel Telephone Exchange

Preliminary meetings have been held with the Project Section to determine a suitable floor plan and to select a site.

# C-482 - Pile and Pile Water Plant Improvements

Drawings for the 105-8 rear face modifications have been completed. Studies and tests are being made in an effort to improve rear face pigtail design. Sample aluminum pigtails are being produced for test purposes. Design work has been completed on all firmed items for the 105-DR rear face modifications.



# Design Section POOR QUALITY ORIGINAL

# C-495 - Outlet Tube Temperature Monitoring Spare Thermosouple 105 B, D and F

Design was advanced 50% during April and was 75% complete at the month's end. Arrangement plans will be sent to the field this week to enable field forces to start breaking concrete for wire-ways on 105-F during the next shut down. Steel for duct fabrication has been ordered.

# C-496 - Remplex Installation - 234-5 Building

The portion of the design scope assigned to the Design Section is approximately 50% complete, an advance of 25% during April, and is scheduled for completion July 1, 1952.

Preliminary estimates indicate that a saving of \$40,000 will be realized through the use of a partially buried 250,000 gallon waste storage tank instead of the alternate completely buried buble-wall type. The waste disposal problem has been eased by the approval of the use of one of the existing 750,000 gallon underground storage tanks as an alternate means for storing Recuplax wastes.

# MNI-43 - Radiation Monitoring Office Addition 105-D Building

The design was revised to include frangible siding in lieu of concrete block walls. Design is approximately 75% complete, an advance of 65% during the month.

# E.C. 010663 - Pile Technology Test and Storage Building

The preliminary design is being rescoped to include frangible siding in lieu of concrete block.

# E.O. 010704 - Addition to Kadlec Hospital

Preliminary design performed for the purpose of obtaining cost estimates was advanced 40% during April and is 90% complete.

# E.O. 010709 - Replacement of Fire and Sanitary Water Tank 100-D Area

A stress analysis of the existing water tank tower was made and the necessary strengthening determined to bring the tower into conformance with the Uniform Building Code requirements for earthquake forces in this area with a steel tank substituted for the existing wooden tank. The work which was started during April is approximately 90% complete.

# E.O. 011184 - Repair of 105-D Reactor Effluent Line

The preliminary design of the steel replacement effluent line was started during April and is approximately 40% complete.

# E.O. 100201 - Replacement of Section of 105-B Effluent Line

The preliminary design was started and is scheduled for completion May 7, 1952. The finished design is scheduled for completion May 23, 1952.



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### DJECTS IN CLOSING STACES OR COMPLETED DURING APRIL

C-362 - Waste Metal Removal and Recovery

C-413 - Expansion of 234-5 Capacity

C-431-A - 100-C Water Works

C-438 - Ball Third Safety System

C-447 - Portable Meteorological Mast

C-477 - Check Preliminary Drawings and Specifications for Fifth Boiler Addition to Building 284-W

C-479 - Replacement of Ducts, Outside Stairs - 700 Area Buildings

C-48C - Remodeling 722-C Building for Use as Office Machine Repair Shop

C-483 - Downcomer Revisions C-491 - Metallurgy Laboratory - 300 Area

E.C. 006015 - Graphite Fabrication Facilities Building 101 Hanford

E.O. 010669 - New Parking Lot at Site of Present 720 Building

E.O. 010706 - Area Industrial Dispensary. E.O. 010713 - 115 KV Substation Service Buildings

B.O. Olliso - Additional Facilities 189-D Building

E.O. 100094 - 700 Area As-Builts

E.O. 100124 - Scale Models of 300 Area

E.O. 190196 - Review Plans and Specifications - Lewis and Clark School Addition

### INACTIVE PROJECTS

work was performed during the month on the following projects:

C-192 - Biology Building - 108-F

C-441 - Solvent Building

### 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

### SUEJECT

REPORT OF INVENTION (DATE)

H. C. Kllsworth

Electro Magnetic Pulse Generator as Motion Detector

April 18, 1952

Manager, DESIGN







### MONTHLY NARRATIVE REPORT - APRIL 1952

### PROJECT SECTION

### I. SUMMARY

### A. ORGANIZATION

The Assistant Manager, J. S. Parker, transferred to the Aircraft Gas Turbine Division, Lockland, Ohio, as of May 1, 1952.

Following is a summary of personnel data for the Project Section, April, 1952:

	April 1, 1952	May 1, 1952	Net Change
Employees on Payroll Technical Graduates-Rotational	515	492	-23
Employees on Loan to Section	<u> </u>	5 5	. <b>-1</b> 0

The end-of-month status involved these changes:

	Project Section Personnel	Personnel on Loan to Section	Tech Grads.
Payroll Additions Payroll Removals	1 17		
Transfers to Section Transfers from Section Transfers within Section	2 9 6	1	1

### B. SCOPE OF ACTIVITIES

Major projects advanced during the month and attained construction completion status as follows: CG-349, Hot Semiworks, 90%; CG-361, Metal Conversion Facilities, 100%; CG-362, Waste Metal Recovery (TBP), 86.3%; CG-413, Expansion of 234-5 Facilities, 99%; CA-431-A, 100-C Waterworks Facility, 62.3%; CG-431-B New Production Facility, 61.5%; CG-438, Ball Third Safety System, 5%.

### C. MATERIAL PROCUREMENT

The steel strike may seriously affect the Hanford Works construction program; however, a continuous study is being made of substitute sources, alternate materials, and design deviations. Two purchase orders for spare equipment to be charged to Project CG-361, on which construction is complete, are two months past promised delivery date.





### D. CRAFT LABOR

Construction returned to a five-day-week schedule on April 14, 1952. The teamsters remained on the job all month despite the failure of the National Joint Board for Settlement of Jurisdictional Disputes to adjudicate the local dispute between teamsters and plumbers. A jurisdictional dispute between millwrights and plumbers delayed one phase of work on the TBP job from Friday, April 11, through Wednesday, April 16. The craftsmen were assigned to other work; so no time was lost to the overall construction program. The petition filed by Technical Engineers and Architects Association for representation election for engineering employees of the main CPFF construction contractor has been withdrawn without prejudice.

### E. SAFETY

Routine safety meetings and investigations were conducted. The Minor Construction Management Unit held meetings to discuss special hazards on the Ball Third Safety System work. These meetings were attended by both General Electric and construction contractor personnel.

### F. HIGHLIGHTS OF UNIT ACTIVITIES

Minor Construction Management Unit completed nine work orders and its assigned portions of CG-423 (Additional Waste Evaporation Facilities - 200-E), and CG-474 (Relocation of Exponential Facilities). New work authorized to the Unit consisted of eleven jobs estimated at \$33,000. To overcome the lack of welders, the Unit is arranging to have certain welding done outside the SWP areas. The Unit has made several procedural changes in material control, warehousing, and tool control. The existing automotive and machine shop building is being altered to replace the portion of the automotive shop lost in the January fire.

Project Engineering Unit worked on 73 project items and ll informal requests, totaling \$17,953,000. One revised and two new Project Proposals were transmitted to sponsoring organizations. One informal request was approved by the A&B Committee, and four authorizations were granted by the AEC. Four project items and eleven engineering requests were either completed or cancelled.

Project Services Unit continued work on close-out and transfer of North Richland accounts to the AEC and its contractors. The Field Services group completed all field work on Project AEC-Olo, "Survey and Sub-Division of Richland, Washington". With lowered demands for steam, each boiler of the 3000 Area Steam Plant is being turned off, inspected, and repaired. All other services continue at normal rate.

Reactor Projects Unit continued work on Acceptance Test Procedures and engineering calculations for the changes in water treatment for "C" Area. Approximately 95% of the concrete required on CA-431-A (100-C Waterworks) has been poured.





### Reactor Projects Unit (continued)

All related construction is progressing satisfactorily except erection of steel by the subcontractor on the 187-C High Tanks. On CG-431-B, graphite installation was begun April 16 and completed April 26. This installation of 127,000 pieces was accomplished in slightly less than 30 shifts time. The greatest deviation at any one point from calculated graphite elevation was ten mils. Installation of process tubes was completed April 26, and the unit was accepted by Pile Technology from a reactivity standpoint April 28. Installation of the top thermal shield and leading-in of scoling tubes is complete. The steel supporting structure for the top biological shield is being erected.

Separations Project Unit completed CG-361, Metal Conversion Facilities, except for one \$3,300 work order to Minor Construction. This work will not interfere with operation of the plant. Project CG-418, Additional Waste Storage Facilities, was inspected and put into service. Project CG-413, Expansion of 234-5 Facilities, was advanced to 99% complete, 2% ahead of schedule. Installation and testing of the R.M.B. line has been completed. Project CG-362 (TBP) construction was advanced 4.1%, a gain of 2.2% on the schedule lag. On April 22, General Electric reassumed responsibility for field work on all phases of CG-362. To date as-built drawings on CG-362 have been received as follows: Vitro Corporation - 262, General Electric - 106.

### 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.

Inventor	<u>Title</u>	Report of Invention (Date)
I. Hawn	Remote Coupling	3-25-52
E. A. Rees	Radiological Shielding Block	3-13-52

. McMahon, Manager-PROJECTS

Date: April 30, 1952





II. STATISTICAL AND GENERAL

# DECLASSIFIE

### A. SIGNIFICANT ASSIGNMENTS

### 1. Initial Reporting

### CA-497 - New Substation Fences and Grounding of Existing Fences

Design completion status is 40%; construction has not begun. The project is awaiting AEC approval.

### 2. Final Reporting

### CG-361 - Metal Conversion Facilities

Construction was completed except for one \$3,300 work order to Minor Construction, and about six man-days on Part "C". The work will not interfere with operation of the plant. As-built drawings on Parts "B" and "C" were completed.

The AEC issued Modification No.12, dated April 11, 1952, to Directive No. HW-158. The modified directive authorized a decrease in project funds to \$2,170,000 of which \$264,000 is for design and \$1,906,000 is for construction.

Part "B" facilities were physically completed April 17. Part "C" facilities are scheduled to be turned over to Operations on May 7, 1952.

### CG-380-R - Electricity Metering - Village of Richland

All final phases have been completed, and information for Physical Completion Notice has been submitted.

### CG-418 - Additional Waste Storage Facilities

Project was inspected April 1, 1952, and is in service. Two minor exceptions will be cleared with completion of CG-362.

## CG-423 - Additional Waste Evaporation Facilities - 200-E

This work has been completed, and the project is being closed out. A work order has been issued for completion of certain electrical phases that can be more conveniently accomplished after completing TBP Tank Farm operations.

# CG-474 - Relocation of Exponential Facilities

Work is completed, and the project is being closed out.





### CG-490 - Soul Souenie Lacoratory

About 10% of design work has been done. The Project Proposal was not approved by the A&B Committee. At the request of the Using Department, the project is being closed out.

# FR-A-666 - Insulation Floors and Cailings - 700 Area Permanent Buildings

Because of information which indicates low potential sawings, the sponsor has requested that this study be closed out. Accordingly, no more work will be done.

### ER-A-701 - White Bluffs Steam Plant, Automatic Firing

The AEC assumed management of part of the White Bluffs area as of April 1, 1952. This project has been discontinued by General Electric. Information is being retained to be made available if requested by the AEC.

# ER-2710 - Start-Wo Studies - RMA Line - 234-3 Building

Design work has been completed. This study is scheduled for close-out in May.

### ER-2715 - Corrosion Test Laboratories, 108-B

Design was about 35% complete. The sponsor cancelled in early April.

# ER-2716 - Retirement of P-10 Facilities, 108-3

Design was about 15% complete. The sponsor cancelled in early April.

# HR-2717 - Conversion of 108-B to Corresion and Material Studies

Design was about 5% complete. The sponsor cancelled in early April.

# ER-2718 - Fire Protection 200-E and W Spare Parts Warehouse

Design was about 20% complete. The sponsor requested indefinite postponement.

### ER-2719 - Sketches for P-10 Retirement and Conversion

Design was completed. The order will be closed out during May.

# ER-6010 - Plant Manpower Forecast Including Program X

No work done during the month, and no further work is needed.

ER-6014 - Evaluation of Utilities and General Services Department Landlord Properties

Study was completed during month.





### ER-6015 - Graphite Production Facilities

Study was completed, and the report issued April 29, 1952.

### 3. Current Projects

### CG-349 - Hot Semiworks

Design had been completed previously; construction was advanced 9% to a total of 90%. The revised Project Proposal was approved by the A&B Committee and forwarded to the AEC. All buildings and facilities are in advanced stages of completion. Site grading is completed. Boads and walks are being finished. Progress is being made on acceptance testing, pipe cleaning, ventilation balancing and preliminary equipment trials. The lump sum phase is scheduled for completion in early June.

### CG-362 - Waste Removal and Recovery Facilities (TBP)

Design had been completed previously; construction was advanced 4.1% to a total of 86.3%. This advance represents a 2.2% gain on the schedule lag. In two consecutive months the schedule lag has been reduced from about 17% to 12.5%.

The CFFF contractors have completed 92.85 of their work. Minor Construction has completed about 63.85 of assigned work.

On April 22, General Electric reassumed responsibility for field work on all phases of CG-362.

Completion status of Phase I work to be performed by General Electric remains at 99.4% of a scheduled 100%. Phase II is 53% complete compared with 99% scheduled completion.

Between April 5 and April 30, approximately 355 of 375 listed exceptions were cleared. To date 262 as-built drawings have been received from the architectengineer, and 106 have been received from General Electric Design.

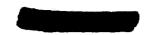
### CA-406 - Mechanical Development Building (Phase II)

Design was advanced 15% to a total of 55%; construction has not begun. Comments on preliminary plans and specifications submitted by the architect-engineer were reviewed with them April 1 and forwarded on April 4. This review showed that many drawings, particularly electrical, would require re-submittal because of insufficient detail.

### CG-413 - Expansion of 234-5 Facilities

Of the portion of this work being done at Hanford Works, overall design was advanced 2% to a total of 97%; construction was advanced 2% to a total of 99%. General Engineering Laboratory's design work was advanced 1% to a total of 96%; construction was advanced 1.5% to completion.

Construction work to be done by Minor Construction forces is 70% complete. It consists of miscellaneous clean-up work, testing, equipment installation, and painting.



# CA-431-A - 100-5 Production Facility Part "A"

Design had been completed previously; construction was advanced 12.2% to a total of 62.3%. Work is continuing on as built drawings and Acceptance Test Procedures. Data and information necessary for the substitution of alum and activated silica as water treatment chemicals have been completed.

To date 71,676 yards of structural concrete and 16,978 yards of lean concrete have been poured. This is 97% of the estimated concrete requirements. Construction is practically complete on 181-3 River Pump House, 183-6 Head House, and 190-C Pump House. Installation of equipment, electrical services, instrumentation, and ventilation systems is progressing. In 190-C Pump House, preliminary runs of pump units 8 and 9 have been made.

Foundations of 183-C Clearwells are complete, and tank erection is beginning. Steel work on 107-C Retention Basins is substantially complete except for interior baffles. Little progress had been made on erection of 187-C High Tanks, mainly because of limited crews. The AEC area engineer has been advised of this condition several times.

# CG-431-B - 100-C Production Facility, Fart "3"

Design completion status remains at 99%; construction was advanced 10% to a total of 61.5%. About 500 yards of structural concrete were placed, bringing the total to 23,000 yards, which is substantially all of the concrete for this project.

Installation of graphite began at 8:50 AM, April 16, and was completed at 6:18 AM, April 26. This packing of 127,000 pieces required slightly less than 30 shifts time. The greatest deviation at any point from calculated graphite elevation was 10 mils. Installation of process tubes was completed April 26, and the unit was accepted from a reactivity standpoint by Pile Technology on April 28. Installation of the top thermal shield and leading-in of cooling tubes is complete. The steel supporting structure for the top biological shield is being erected.

Concrete work on 115-B Facilities is complete, and this entire phase which is being managed by Minor Construction is about 35% complete.

### CG-433 - 384 Steam Plant Addition

Design was advanced 6% to a total of 96%; construction was advanced 2.2% to a total of 4.2%. Design work completed during the month included the review and approval of final electrical drawings and review of piping drawing revisions. A crew averaging 20 people was employed by the contractor and his subcontractors.





### CG-438 - Ball Third Safety System

Design had been completed previously; construction was advanced 3% to a total of 5%. The architectural phase was completed in the battery rooms of 105-D, 105-DR, and 105-F. A portion of the electrical work was done in these rooms, and in 105-B battery room. Work was continued on construction of special tools and equipment.

On April 29, 1952, at the beginning of the steel strike, the following quantities of steel balls had been produced: 15,000 lbs of balls delivered to the plater; 10,000 lbs of balls in process; and 60,000 lbs of wire at the mill. The expected shipping date for the 400 lbs of glass balls is the week of May 5. Shipment of the hopper and step plug units is promised for June 14th.

### CG-482 - Pile and Pile Water Plant Improvements

Design was advanced 35% to a total of 40%; construction has not begun. AEC authorization for Revision I to the Project Proposal has not been received. Design is proceeding according to the revision. Specifications for the procurement of materials are being prepared.

Revision II to the Project Proposal requesting funds for the construction phase is being prepared for submittal at the May meeting of the A&B Committee. Complete studies of aluminum pigtails are being made, particularly corrosion effects. The design now favors the inclusion of a sacraficial piece between the stainless steel crossheader and the aluminum pigtail.

#### 4. Research

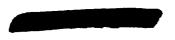
# RDA-DC-5 - Design Development, Mechanization of the 300 Area Slug and Component Preparation Facilities

Design was advanced 2% to a total of 34%; construction has not begun. Development work assigned to the General Engineering Laboratory has been completed, and reported in Document GEL-Ol9, "Study Report - Slug Canning and Quench Machine", with 12 layout drawings. This report includes summaries of development tests performed by the Laboratory, discussion of the adaptation of this machine to potential process changes, and recommended materials for construction.

#### B. OTHER ASSIGNMENTS

### CG-187-E - Conversion of Unassigned Space for Radiochemistry Laboratory

Design had been completed previously; construction was advanced 15% to a total of 25%. Stainless steel construction was about 80% complete. The suspended ceiling and the light fixtures were about 50% installed. Preparations were completed for installation of the Hauserman partitions.





### CA-430-Revision 2 - Improved Lighting - 703 Building

Design work was advanced 20% to completion; construction has not begun. Complete plans and specifications have been transmitted to the AEC Contract Section.

### CG-432 - Air Raid Warning System, Richland and North Richland

Completion status remains at design 100%, construction 98%. Several minor changes and repairs are being made to the equipment, in preparation for additional testing in May.

### CA-L3L-R - New Bio-Assay Laboratory

Completion status remains at design 92%, construction 0%. Design rescoping has been completed, and the project proposal estimate is being prepared.

### CA-441 - Solvent Building

Completion status remains at Design 95%, construction 05. The revised project proposal has been authorized by the AEC. This work is to be performed on a lump sum contract basis and managed by the AEC.

### CG-412 - X-Ray Machine - 3745-A

Design completion status remains at 95%; construction was advanced 1% to a total of 90%. A new X-Ray tube has been installed, and the machine is being tested. The operating end of the building is to be enclosed with a one-foot thick concrete wall. Design and specifications are being prepared for lump sum bidding.

### CG-hk5 - B-Y Telephone Exchange Additions and Changes

Design had been completed previously; construction was advanced 20% to a total of 80%. The completion date has been extended to January 1, 1953 to allow for delivery of telephone equipment. A stop charge order has been issued until work can be resumed.

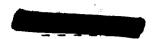
### CG-bh7 - Portable Meteorological Mast

Design was advanced 6% to a total of 74%; construction was advanced 5% to a total of 25%. Instrument fabrication has begin in the 300 Area Instrument Shop. The three-cup anemometers are being shipped from England and will be calibrated in the U.S. Bureau of Standards wind tunnel.

# CG-451 - Extension of 300 Area Underground Electrical Power Distribution System

Design was advanced 2% to completion; construction has not begun. Plans and specifications have been transmitted to the AEC Contract Section.





### CA-452 - Meteorology Tower Elevator

Completion status remains at design 100%, construction 0%. New revised specifications have been prepared to include a third alternate for the operation of this elevator. Lump sum bids will again to requested.

### CG-454 - Spectrometer Shielding

Design was advanced 3% to a total of 98%, construction completion status remains at 65%. A revised project proposal to include a new collimator and step plug shielding element is awaiting approval.

### CA-455 - Replace Two Elevated Water Tanks in 200-E Area

Design was advanced 20% to a total of 70%; construction has not begun. Specifications in rough draft form are being circulated for comments.

### CG-456 - Additional 13-Quad Telephone Cable - BY to Point "I"

Design had been completed previously; construction was advanced 7% to a total of 98%. Work was accepted April 28, with minor exceptions which are scheduled for clearance in May.

### CA-457 - Pile Technology Office Building

Completion status remains at design 100%, construction 97%. Preliminary inspection has been held with the contractor, and the building was partially occupied by Pile Technology Unit on April 7. The ventilating equipment is yet to be installed.

# CA-460 - Installation of Asbestos Siding and Painting Wood Trim-272 E and W

Design had been completed previously; construction was begun and advanced to 10%. Progress has been slow because the contractor is having difficulties in obtaining clearances for his men.

### CG-461 - Maintenance Hot Machine Shop

Design had been completed previously; construction was advanced 15% to a total of 90%. Preliminary inspection was held, and the Using Department began to use the shop April II. Late delivery of the electrical buss duct has prevented completion.

### CG-468 - Horizontal Rod Mock-Up Test Facilities - 189-D

Design had been completed previously; construction was advanced 25% to a total of 95%. Authorization has been received for Revision 2, extending the completion date to June 1, 1952.





# CA-470-R - 200-W Sidge House Pemodeling

Design had been completed previously; construction was begun and advanced to 12%. Work by the contractor was begun April 18. Construction time is 70 calendar days.

# CA-473-R - 100-B Automatic Dial Telephone Exchange

Design completion status was revised downward to 50%. The terms of the directive required complete re-design. Construction has not begun. The project was approved March 31, 1952. Design is to expedited for completion by June 15, 1952.

# CG-477 - Building 284-W - Fifth Boiler Addition

Design was advanced 10% to a total of 35%; construction had not begun. Preliminary design and specifications have been reviewed. A procurement schedule has been established. A revised project proposal requesting a decrease in authorized funds has been submitted.

# CA-478 - Area Fence and Minor Repairs Excess Material Warehouse-North Richland

Completion status remains at design 100%, construction 0%. A lump sum contract was awarded and work will proceed within its terms. A change in scope requested by the Using Unit has required a rewised project proposal. This revision is being prepared.

# CA-479 - Replacement of Docks and Outside Stairs-700 Area Permanent Buildings

Design was advanced 3% to a total of 98%; construction has not begun. Design and specifications are completed. Lump sum bid assemblies are being prepared.

# CA-480 - Remodeling 722-2 Building for Office Equipment Repair

Design was advanced 3% to a total of 98%, construction has not begun. Design and specifications are completed. Lump sum bid assemblies are being prepared.

# CG-483 - Downcomer Recairs in 100-8, D. DR and H and Replacement in 100-F

Design was advanced 25% to a total of 85%; construction has not begun. Priority directives have been received for a shipping date for the AISI Type 502 on June 15, 1952. Vent repairs in 100-DR and H have been redesigned, and prints have been issued for comments by the operating Department.

# CG-484 - 300 Area Administration Building

Completion status remains at design 10%, construction 0%. Work has been discontinued on project preparation for a new building. The sponsor is considering the desirability of a single structure.



### CA-489 - Positive Ton Aucelerator

Completion status remains at design 10%, construction 0%. The project proposal is awaiting authorization by the AEC.

### CA-491 - Metallurgy Laboratory, 300 Area

Design was advanced 1% to a total of 96%; construction has not begun. Final design and specifications are being approved, preparatory to securing lump sum bids.

### CG-492 - Experimental One-Tube Ink Facility

Completion status remains at design 95%, construction 0%. Remaining design work has been delayed until details can be checked during shutdowns. Construction is being deferred until sufficient material is available.

### CG-493 - Duct Level Safety Showers, Building 234-5

Completion status remains at design 100%; construction 0%. The directive authorizing construction has been received.

### CG-496 - Recuplex Installation, 234-5 Building

Design was advanced 1% to a total of 10%; construction has not begun. Directive HW-279, dated April 15, 1952, authorizing \$90,000 for design, was issued by the AEC. A revision requesting an additional \$310,000 for procurement was forwarded to the A&B Committee. The Design Criteria Document is being prepared.

The following studies and engineering requests, involving preparatory work and scoping of future projects, were active during the month:

ER-E-466 - Improved Lighting and Increased Electrical Capacity Miscellaneous 700 Area Buildings

Completion status remains at design 20%, construction 0%.

ER-E-476 - Design and Specification for Improved Lighting, White Bluffs and 200-E and W Telephone Exchanges

Design has been completed; construction has not begun. The information has been transmitted to the AEC Contract Section for contracting with CA-430-Revision 2.





# ER-E-477 - Remote Supervisory Control 100 Area Water Plants

No work has been done, except preparation of an informal request for design funds.

### ER-A-661 - Central Distribution Headquarters

Preliminary design has been completed, and a project proposal is being prepared.

ER-A-663 - Pile Technology Test and Storage Building

Additional funds have been received to permit rescoping.

ER-A-667 - Water Drainage Around 700 Area Buildings

Preliminary work is progressing.

ER-A-671 - Crushed Rock and Oil Covering, 700 Area

Preliminary design work is being done.

ER-A-673 - Floor Coverings - 700 Area Permanent Buildings

A rough draft of the project proposal has been completed.

ER-A-681 - Roads and Walks - 700 Area

Preliminary work is being correlated for completion of design and preparation of project proposal.

ER-A-682 - Underground Steam Line, 722-C and 707 Buildings

The Using Department has requested the preparation of a project proposal.

ER-A-686 - Painting High Tanks - 105-B and 105-D and 105-F

Scope has been increased to include two high tanks in 105-D Area. The project proposal is being prepared.

ER-A-698 - Lubrication Pits, 100-D and 100-F Buildings

Project Proposal is awaiting approval.

ER-A-702 - Exhaust System Alteration, 716 - 1131 Buildings

Informal Request is awaiting authorization by AEC.

ER-A-703 - Sanitary Facilities - Surplus Sales Yard

Project Proposal is being prepared.





# ER-A-704 - Addition to Madiso Hospital

Preliminary electrical and mechanical design is progressing. This project is to be separated from Program "X".

# ER-A-705 - Rest Room Alterations, 700 Area Buildings

A rough draft of the informal request has been prepared.

### ER-A-706 - Area First Aid Buildings

Preliminary electrical and mechanical design is progressing.

# ER-A-707 - Fire Protection Buildings, 272-E and W

A project proposal estimate is being prepared.

### ER-A-708 - Temperature Recording Stations

A cost estimate has been submitted to the Using Department.

# ER-A-709 - Replacement of Fire and Sanitary Water Tank, 100-D

Present tank supports and foundations are being checked to determine strength for support of new steel tanks.

# ER-A-710 - Spare Parts Warehouse, 100-200 Areas

Scoping and project proposal preparation are continuing under direction of Separations Section.

### ER-A-711 - 711 Waste Storage Hut 234-5

Preliminary designs have been completed. A project proposal has been prepared and submitted to the A&B Subcommittee.

# ER-A-712 - Richland Air Raid Shelter Study

Informal request is still awaiting authorization by the AEC.

# ER-A-1177 - Additional Indication of Moderator Temperatures, 105-B, D, F, and DR

A project proposal was submitted to the A&B Committee April 18. The remaining phases will be managed by the Manufacturing Department.

# ER-A-1179 - High Pressure Water Supply to Front Face, 100-B.D.F.DR and H Areas

The rough draft of the project proposal is being reviewed by the Reactor Section, which is also reviewing its requirements.



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## ER-A-1180 - Additional Facilities in 189-D Building

An informal request letter is being submitted.

### ER-A-1182 - P-13 Pressure Assembly Removal

The project proposal is being circulated for approval.

### ER-A-1183 - Repair of 105 Effluent Line Junctions with 107-DR

The project proposal has been submitted to the A&B Committee.

### ER-A-1184 - Replacement of 100-D Reactor Effluent Line

Design was advanced 10% to a total of 25%; construction has not begun. Current plans are to carry the steel line over the basin wall.

### ER-A-1185 - Car Piller and Car Shake-Out

Design was begun and advanced to 5% complete. Preliminary scoping has established one double-track shakeout system for each of the 100 Areas and one single-track system for each of the 200 Areas. Each area will have one car puller and a Hauser shelter.

### ER-A-2596 - Remodel Former Laundry Building for Engineering Offices

The field contact engineer has advised further study of justifications.

### ER-2713 - - Ground Level to Roof Stairway - 224-U Building

Design was advanced 35% to a total of 75%; construction has not begun. An informal request is being prepared.

### ER-2720 - Fire Protection Equipment - Building 234-5 Filter Room

Scope material is in rough draft form.

### ER-6011 (M-135) - 700 Area Steam Study

The study was advanced 10% to a total of 95%. The report is being written.

### ER-6012 - Hanford Works Standards Evaluation

The study has been completed, and the report is awaiting approvals.

### M-713 (ER-A-1068) Vertical Safety Rod Corrective Designs, 105-B,D and F

Completion status remains at design 65%, construction 0%. A request has been prepared for extension of the completion date to October 31, 1952.



### M-852 (IR-96) - Replacement of Air Lock Doors, Ma-5 Suilding

A revised informal request was summitted to extend the completion date.

### IR-112 - Building 224 Waste Diversion, 224 E & W

Design is complete; construction has not begun. A revised informal request has been prepared in rough draft. Minor Construction has been scheduled to begin the work May 5, 1952.

### IR-113 - Pile Technology Metallurgical Latoratory Alterations - 234-5 Building

Design is complete; a construction schedule has been prepared. Procurement has been started.

### IR-115 - Radiation Monitoring Addition to 105-D

Design is 90% complete; construction has not begun. Procurement has been started.

### IR-116 - Combined Civil Defense and Plant Disaster Control Center

Design was about 5% complete; construction has not begun. Various locations are being studied.

### AEC-117 (C10) - Survey of Richland, Washington

This survey work is approximately 90% complete. A completion date of June 1, 1952 has been set.

### C. RELATED SERVICES

#### 1. Design Services

Drafting work lead increased slightly during the month, with Program "X" continuing as the largest job. Total production was 255 new drawings, by charts and graphs and 372 revisions. Average production was 6.2 man days per drawing.

Reproduction output increased slightly over the March figure. Total square feet of prints produced was 330,526. The largest single orders were 3,942 prints for CG-431-B and 2,406 prints for CA-431-A.

The first quarterly report covering the activities of cost-reduction committees in Drafting and Reproduction was submitted.

The Field Service group completed all field work on the survey of Richland (Project AEC-117). The Estimating Services group completed 39 estimates. The History group issued two histories. Project Control completed





preparation of the Construction Budget for 1954 and the budget revision for 1953. The Project Control group began studies on a new system of charts to show progress of projects.

#### Construction Services (Close-cut) 2.

Work is proceeding on the close-out and transfer of accounts in North Richland through Construction Accounting. Assistance is being given personnel of the AEC and the main CFFF contractor in establishing operating procedure for North Richland.

With lowered demands for steam, a schedule was established for inspecting boilers in the 3000 Area Steam Plant. Each boiler is turned off, inspected and repaired if necessary.

### D. CRAFT LABOR

Construction returned to a five-day-week schedule on April 14, 1952.

Voluntary terminations of CFFF construction contractors' personnel continued an upward trend. Percentage of terminations in April was 6.9, an increase of 1% over March.

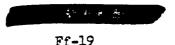
A net loss of 76 plumbers and welders (both still in critical supply) was suffered during the month. There remained 157 on requisition, including 72 welders. This shortage is partly overcome by having certain welding done outside SWP areas, then moving in the sub-assemblies.

The teamsters remained on the job all month despite the failure of the National Joint Board for Settlement of Jurisdictional Disputes to adjudicate the local dispute between teamsters and plumbers. The Joint Board postponed one hearing at the request of the Teamster International. On April 30, the Joint Board requested two construction contractors at Hanford Works to submit detailed descriptions of past and present practices relative to loading and unleading piping materials at Hanford Works.

A jurisdictional dispute between millwrights and plumbers delayed one phase of work on the TBP job from Friday, April 11, through Wednesday, April 16. The craftsmen were temporarily assigned to other work; so no time was lost to the overall construction program. The work was assigned to the plumbers.

The petition filed by Technical Engineers and Architects Association for representation election for engineering employees of the main CPFF construction contractor has been withdrawn without prejudice.

At the request of AEC, a Project Negotiating Committee was formed by representatives of active and prospective construction contractors at Hanford Works. A corresponding Negotiating Committee was selected by the unions. It is expected that negotiations will be resumed during the week of May 12.







The Davis Panel has made recommendation on the boilermakers dispute as follows:

- 1. That the union continue with isolation pay instead of the travel and subsistence provided in the Seven Western States Agreement.
- 2. That the work pattern continue. The union has not accepted the recommendation and has not signed a new Schedule  ${}^mA^m$ .

Of the various negotiations which concern the Hanford Works construction program, the following progress was noted during the month:

- 1. Ironworkers agreed on a 15-cent increase (\$2.50 to \$2.65) effective January 1, 1952, contingent upon a survey of heavy contractors in the area.
- 2. Carpenters agreed on an  $8\frac{1}{2}$ -cent increase (\$2.42 to \$2.51) effective the next full payroll period on or after March 19, 1952, subject to Construction Industries Stabilization Commission approval.
- 3. Sheet Metal Workers agreed on a Health and Welfare Plan and a compromise vacation plan.
- 4. Cement Masons agreed on a 17-cent increase (\$2.40 to \$2.57) effective January 1, 1952.
- 5. Painters presented a demand for 6-cents an hour (balance of 10% available) plus an amount to be based on negotiations with other contractors in the area.

### III. ORGANIZATION AND PERSONNEL

Twenty-two personnel, 5 exempt and 17 non-exempt, are still assigned to the 3000 Area Steam Plant.

### **APRIL 1952**

### General

### Personnel Changes

The roll decreased from 273 to 271.

#### **Visits**

Dr. Scudder and Dr. Norwood attended the Industrial Health Conference in Cincinnati. This annual meeting brings together the various major groups in this country who are concerned with occupational health.

Dr. Sachs attended a meeting in Yakima concerned with Selective Service for physicians.

Mr. Bakko went to Yakima for the midyear meeting of the Washington State Hospital Association.

Two nurse supervisors attended a conference on maternal and child welfare in Pendleton, Oregon.

One supervisor and three nurses attended the annual meeting of the Washington State Nursing Association in Yakima.

Mrs. Steinmentz, field consultant for the State Department of Social Security, visited the Welfare Section to explain our eligibility to be a registered child placement agency.

### Industrial Medicine

Employee physical examinations changed little from 2024 to 2010. There was also little fluctuation in dispensary treatments from 10,729 to 10,579.

The health topic "Hospitals" was appropriate as G. E. insurance plans encourage early hospitalization with correspondingly earlier cures and return to work. One G. E. employee was treated for major injury and 2 for submajor injuries.

Subcontractor employees sustained 13 major and 17 submajor injuries. The reporting of all minor injuries to the Department of Labor and Industry was started on April 21st, using a short form. This puts every case on record with the state and protects the employee's rights in an occasional case where a serious complication develops more than a year after an apparently minor injury. The state law does not allow compensation on any case not reported within a

year of the time of accident.
The sickness absentee rate was 1.87 as compared to 2.20 for March.

### Kadlec Hospital

The average daily census decreased from 103.1 (90.5 adults, 12.6 newborns) to 100.7 (89.2 adults, 11.5 newborns)

The census was 93.7 a year ago.

The occupancy rate for mixed services (all services except obstetrics) was 84.2. Nursing hours per patient day were 3.3 for the mixed services and 5.0 for obstetrics.

### Public Health

Communicable disease level remained about constant with mumps and german measles being the highest contributors.

Mosquito control activities were prominent with burning and clearing operations, ditch clearance for drainage, and larvaciding requiring many man days of labor. Costs - March

Medical Department costs before assessments to other departments were as follows:

### **APRIL 1952**

### General (Continued)

The net cost of operating the Medical Department before assessments to the other departments was \$79,663, a decrease of \$5,750 and \$9,934 below the budget.

Kadlec Hospital net cost was down by \$7,513 to \$12,827 one of the lowest ever experienced. The improvement was largely due to an increase of \$6,564 in revenue and expense credits, while gross costs decreased by \$949.

There were no significant changes in Public Health and Industrial Medical expense.

### APRIL 1952

### Industrial Medical Section

General

Medical examinations remained about the same as for the previous month, 2010 as compared to 2024. Dispensary visits decreased from 10,729 last month to 10,579. The decrease resulted from fewer operations employees visits while contractor employee visits remained about the same. General Electric employees sustained 1 major injury and 2 submajor injuries. Contractor employees sustained 13 major injuries and 17 submajor injuries. Drs. Norwood and Scudder attended the Cincinnati meeting of the Industrial Medical Association. A review of the papers heard there was made at the Industrial Physicians Scientific Meeting and a general discussion followed.

On April 21st, the reporting of all minor injuries to the Washington State Department of Labor was begun. By special agreement with the Department a new short form was made for this purpose and does not require that a minor injury be seen by a physician for completion of the form.

Studies are being repeated on the physical condition of all General Electric bus drivers since they daily transport large numbers of employees. Commercial bus companies have been contacted for statements of their requirements in order for us to revise or justify our present standards. A number of our bus drivers are approaching retirement age and special consideration is being given to standards for age when there are no other disqualifying factors.

One case of plutonium contamination to the skin of the face required medical attention during the month. High skin levels of plutonium contamination became complicated when accompanied by acid skin burns.

The Chemical Hazards Committee met during the month for discussion of chemical hazards under survey. Degreasing hazards have been lessened but require further survey. Stack gas studies in the 200 W area are continuing for clarification of nitrogen oxide concentrations.

The Health Activities Committee met on April 17th and the health topic on "Hospitals" was presented. Material on this subject was prepared for distribution throughout the plant. Employee counselling methods were reviewed for absenteeism control in individual employees.

The combined sickness absenteeism for both weekly and monthly roll employees was 2.20% for the month of March as compared to 1.94% in February.

### **APRIL 1952**

### Industrial Medical Section (Continued)

March gross costs increased for operations \$1,553 over February which can be explained as follows:

	March	February	Increase (Decrease)
Salaries	\$26,109	\$25,587	522
Continuity of Service	2,586	2,470	116
Laundry	338	351	(13)
Utilities, Transportation, Maintenance	3,247	3,030	217
Supply and Other Costs	4.445	<u> 3.734</u>	<u>_711</u>
Gross Operating Costs	36,725	35,172	1,553
Less: Revenue	807	818	(11)
Expense Credits	<u>5.329</u>	<u>5,287</u>	42
Net Cost of Operations	<b>30,</b> 589	29,067	1,522

The salary increase of \$522 is due to a longer work month.

Maintenance costs increased \$217 due to additional work order costs in the Area First Aid stations.

Supply and Other Costs increased \$711 due to (1) \$375 charge from the Stenographic pool for loaned personnel who replaced medical personnel off due to illness (2) \$100 additional charge for printing services and (3) \$236 additional charges for office furniture and equipment received during the month.

# <u>Industrial Medical - Construction</u> <u>Industrial Medical construction gross costs decreased \$490 summarized as follows:</u>

Salaries	March 12.173	February \$ 12.187	(Decrease)
Continuity of Service	1,206	1,176	30
Laundry	52	54	(2)
Transportation and Maintenance	92	199	(107)
Supply and Other Costs	1,891	2,288	(397)
Total	15,414	15,904	(490)

The reduced costs of \$397 shown as supply and other represents a reallocation of the charge received for Financial Department Service, due to recent study which was made and which gives a more equitable distribution.

# APRIL 1952

ustrial Medical Section (Continued) Physical Examinations	March	April	Year to Dat
Operations	1101	1101 111	<del>00</del> 52.
Pre-employment	. 87	88	374
Rehire	。 u	15	40
Annual	。 268	308	108
Interim	. 108	87	36
A. E. C.	。 37	70	18
Re-examination and rechecks	。 80	<b>57</b>	29
Termination	。 200	156	. 67
Sub-total	. 791	781	302
Contractors Pre-amployment	. 235 211 . 67 . 781 . 0	118 157 46 906 2	78 84 27 303 1
Sub-total	. 1294 . 2085	1 <i>2</i> 29 2010	496 798
Laboratory Examinations Clinical Laboratory			
Government	. 139	349	75
Pre-employment, Termination, Transfer	。 3767	2504	1344
Annual	。 1526	1829	654
Recheck (Area)	。 585	648	233
		52	

Hospital			5057 4180	18964
Public Health			32 33	100
Total			11875 10238	44858
10007				
X-Ray		•		
Government			26 . 42	147
		0 • • • • • • •		
Pre-employment, Te	rmination.	Transfer .'	553 369	2056
Annual	_		275 327	1138
First Aid			197 245	1007
LILISU WILL				
Clinic			298 251	1263
Hospital			383 332	1446
Dubide Masith			15 7	26

# APRIL 1952

Industrial Medical Section (Continued) First Aid Treatments Operations	March	<u>April</u>	Year to Date
New Occupational Cases	449	475	1741
	1503	1512	5921
	3364	3136	12795
	5316	5123	20457
Construction  New Occupational Cases  Occupational Case Retreatments  Non-occupational Treatments  Sub-total  Facility Operators  Total First Aid Treatments	912	936	3681
	3404	3602	14716
	1061	870	4466
	5377	5408	22863
	36	48	151
	10729	10579	43471
Major Injuries General Electric	1	1	4
	22	13	85
	23	14	89
General Electric	7	2	11
	14	17	59
	21	19	70
Absenteeism Investigation Total No. calls requested Total No. calls made No. absent due to illness in family No. not at home when call was made	11	9	64
	11	9	64
	0	0	1
	1	1	8

#### **APRIL 1952**

### Hospital Section

General

The Medical Department's roll reduced from 273 to 271.

The average daily adult census decreased from 90.5 to 89.2, as compared to 83.0 a year ago. This represents an occupancy percentage of 79.6, broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) 84.2%; Obstetrical Service 60.0%. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service	59	89
Obstatrical Service	6	19
Total Adult	76	104

The average daily newborn census decreased from 12.6 to 11.5, as compared to 10.7 a year ago.

Nursing hours per patient per day:

Medical, Surgical,	Pediatrics	3 <i>-</i> 3
Obstetrical		5.0
Newborn		3.1

The ratio of in-patient hospital employees to patients (excluding newborn) for the month of March was 1.85. When newborn infants are included, the ratio is 1.62.

The net expense for the operation of Kadlec Hospital for March was \$12,827, as compared to \$20,340 for February. Summary is as follows:

Kadlec Hospital net expense \$12,827
This is a decrease of \$7,513. It is due primarily to increased revenue as result of two additional days in the month and increase in pharmacy, x-ray, laboratory and central supply revenue. Expenses dropped \$949, revenue increased \$6,448 and expense credits increased \$116.

Mr. O. E. Bakko attended the midyear meeting of the Washington State Hospital Association in Yakima.

Mrs. Helen Turner and Mrs. Alline MacDonald attended a one-day conference on maternal and child welfare in Pendleton. Oregon.

Mrs. Winona Rosander, Mrs. Minnie Hollingsworth, Miss Catherine Vesser and Mrs. Helen Mayberry attended the annual meeting of the Washington State Nursing Association in Yakima.

# **APRIL 1952**

Hospital Section (Continued)	March	April.	Year to Date
Kadlec Hospital			
Average Daily Adult Census	90.5	89.2	91.7
Medical	30.1	24.6	29.1
Surgical	33.2	31.7	33.9
Pediatrics	13.7	20.3	15.5
Mixed	77.0	76.6	78.5
Obstetrical	13.5	12.6	13.2
Average Daily Newborn Census	12.6	11.5	12.1
Maximum Daily Census:		. ———	
Mixed Services	95	89	95
Obstetrical Service	23	19	23
Total Adult Census	107	104	110
Minimum Daily Census:			
Mixed Services	52	59	52
Obstetrical Service	7	6	6
Total Adult Census	63	76	63
Admissions: Adults	635	547	2351
Discharges: Adults	627	571	2344
Newborn	82	82	326
Patient Days: Adult	2806	2678	11077
Newborn	391	345	1461
Total	3197	3023	12538
Average Length of Stay: Adults	4.5	4.7	4.7
Medical	5.2	4.7	<sup>'</sup> 5•3
Surgical	4.1	4.5	4-4
Pediatrics	4.4	5.5	5.0
Mixed	4.5	4.8	4.8
Obstetrical	4.3	4.2	4.3
Newborn	4.8	4.2	4.5
Occupancy Percentage: Adults	80.8	79.6	81.9
Medical	91.2	74.5	88.2
Surgical	114.1	109.3	116.9
Pediatrics	43.8	70.0	53.4
Mixed	84.6	84.2	86.3
Obstetrical	64.3	- 60.0	62.9
Newborn	48.5	44.2	46.5
(Occupancy Percentage based on 112 adult beds	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , ,	
and 26 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	3.3		
Obstetrics	5.0		
Newborn	3.1		
Avg. No. Employees per Patient	<b>7</b>		
(excluding newborn)	1.85		
Operations: Major	84	.73	332
Minor	92	85	379
E.E.N.T.	86	86	331
Dental	1	2	6
Births: Live	90	77	329
Still	í	2	6
	-		

	APRIL 1952	March	<u>April</u>	Year to Date
Kadlec Hospital (Continued)				
Deaths	0.00	4	4	20
Hospital Net Death Rate		•28	<b>.1</b> 5	•29
Net Autopsy Rate		75.0	50.0	60.0
Discharged against advise		4	2	6
One Day Cases		155	119	527
Admission Sources:				
Richland	0 9 0 9 9	76.4	74.8	75.6
North Richland		12.1	12.0	12,3
Other		11.5	13.2	12.1
			-	
Admissions by Employment:				·
General Electric		71.8	69.6	70 -4
Government		2.7	1.5	2.1
Facility		6.0	6.6	6.5
Contractors		14.8	15.9	14.9
Schools		1.8	2.0	1.8
Military		•5	0	•9
Others		2.4	4.4	3.4
Hospital Outpatients Treated		459	423	1775
Physical Therapy Treatments				
Clinic		262	279	969
Hospital		80	154	474
Industrial: Plant		254	254	997
Personal		7	7	31
Total		603	694	2471
Pharmacy			• •	
No. of Prescriptions Filled		3338	3186	13204
No. of Store Orders Filled		771	767	3073
No. of profe cidera intree			1-1	
Patient Meals				
Regulars		4353	3837	17186
Children under 8		627 .	1005	2796
Specials		1525	1592	6030
Lights		1	3	4
Softs		952	687	3547
Tonsils		155	178	642
Liquids		187	138	727
Surgical Liquids		91	93	358
Total		7891	7533	31290
70007	<b>, , , , , , , , , , , , , , , , , , , </b>	<b>/ -</b>		<del>-</del>
Cafeteria Meals			7.4==	m: 37
Noon · · · · · · · · · · · ·		1926	1877	7411
Night		263	232	1036
Total		2189	2109	8447
· -				

### **APRIL 1952**

### Public Health Section

General

The communicable disease picture remains approximately the same with German measles and mumps being reported at the same level of frequency. The morbidity level remains constant. The number of public health home nursing visits also remain approximately at the same level.

A meeting was attended at Yakima by the Health Officer with regard to the selective service act in connection with professional people.

Study of absenteeism rates for the plant was instigated with the cooperation of the Industrial Medical Section. A review of absenteeism due to sickness will be made.

Numerous nuisance investigations were made in the village, relative to insanitary conditions existing in yards and disposal grounds. Arrangements were made to have the trash and refuse which accumulated from the 4th Housing Addition, burned. It was dumped near the pit located North of AEC Airport, and created an insanitary condition. Bait and advice regarding rodent control was given to the North Richland Fire Department. Four citations were sent out for illegal dumping of trash and garbage.

Bacteriological tests were run on 120 milk producers, resulting in two being degraded because of high resazurin grades. At present, improper cooling methods seems to be the greatest problem insofar as dairy farms are concerned as shown by high milk temperatures. Arrangements have been made to have Yakima City-County Health Department test raw milk shipped into Carnation plant at Sunnyside, Washington. This will allow us two more days a month to spend in Richland. This department will continue to take pasteurized milk samples of all milk coming into Richland on a monthly basis.

One food handling establishment in North Richland was degraded because of numerous insanitary conditions. Sanitary permits were granted to a new bakery and a sandwich shop.

Burning operations for mosquito control have been completed. A total of 385 acres was burned and cleared. 12 miles of drainage ditch was burned. As an added aid to this years' program, the Transportation Section has cleared approximately 4000 lineal feet of ditches and dug 400 feet of new ditch with a drag line in the Clear Lake area. A culvert was also lowered to provide better drainage to a troublesome area.

Waste water from desert coolers created many mosquito breeding areas last year in the business districts. Violaters were contacted this month in regard to hooking up directly to the sewer.

Mosquito larvae was found in well field, clear lake area, and on some pasture land. 50 acres have been larvicided thus far.

### **APRIL 1952**

Public Health Section (Continued)

Broken irrigation lines continue to be a problem.

Letters have been sent to all pasture land lessees requesting their cooperation in our mosquite control program and outlining measures they can do to help. Water valves will be turned off if they are found using water indiscriminately.

A meeting was held in Enterprise with the townspeople regarding mosquito control. Control measures, such as, burning and larviciding, were advised.

## MEDICAL DEPARTMENT

## APRIL 1952

			Year
Public Health Section (Continued)	March	<u>April</u>	to Date
Education			,
Pamphlets distributed	10,000	35,000	64,215
News Releases	1	0	4
Staff Meetings	1	1	4
Classes	10	0	28
Attendance	406	0	953
Lectures & Talks	16	12	49
Attendance	741	227	1717
Films Shown	5	13	88
Attendance	112	446	5663
Community Conferences	17	16	71
Radio Broadcasts	Ó	4	7
	_		•
Immunizations		. ,	
Diphtheria	2	14	65
Diphtheria Booster	30	5	412
Tetanus	27	15	176
Tetanus Booster	17	6	384
Pertussis	6	11	24
Pertussis Booster	3		10
Smallpox	9	2 6	71
Smallpox Revaccination	23Ó	210	1110
Tuberculin Test	~0	0	5
Immune Globulin	15		64
Other	2	41 3	5
	, <b>~</b>		
Social Service			
Cases carried over	72	<i>7</i> 3	282
Cases admitted	is	15	72
Cases closed	17	20	74
Remaining case load	73	68	280
Activities:	12		
Home Visits	. 4	7	23
Office Interviews	239	249	875
Conferences	50	- 68	270
••	۵,	9	29
Meetings	4	7	~/
Sanitation		100	
Inspections made	126	134	471
Conferences held	49	36	133
contatancas natu	47	)0	. ~
Bacteriological Laboratory			
Treated Water Samples	178	204	716
Milk Samples (inc. cream & ice cream)	ü	10	45
Other bacteriological tests	293	192	1018
Total	482	406	1779
7944		700	,

#### MEDICAL DEPARTMENT

## APRIL 1952

	. (0	 <del></del>	No.	la	lear
ublic Health Section		•	Ma	rch A	pril to Date
Communicable disea	<u>ases</u> -			_	_
Amoebic Dysentary			o •	0	0 4
Chickenpox				9	8 53
Erysipelas	0 0 0 0 0 0		0 0	0	0 1
German Measles .			0 0	129	144 521
Gonorrhea			• •	3	2 8
Impetigo			o o	0	3 3
Influenza (U.R.I.)	)		o •	1	0 1
Infectious Mononue	cleosis		0 0	3	0 3
Measles	• • • • • • •	• 0 • • 0	<b>ა</b>	0 .	1 3
Mumps	• 0 0 0 0 •	0 • • 3 0	• 0	56	46 139
Pediculosis			0 0	0	0 1
Pinkeys			0 0	5	. 5 23
Rheumatic Fever .				0	0 1
Ringworm	0 0 0 0 0 0	0 0 0 0	0 0	0	1 7
Roseola				0	2 2
Scabies				0	0 1
Scarlet Fever				4	5 28
Thrush	0 0 0 0 0 0		• 0	Ó	0 1
Tuberculosis	• • • • • • •	0 • • • 0	a •	1	0 2
Whooping Cough .			• 0	0	2 2
Total		0 0 0 0 0		211	219 . 804
Total No. Nursing	Maid Wieite		1	.090	1011 4060
Total No. Nursing				2 <b>51</b>	157 869
reser no. netating	OTITOR ATDIOS	• • • • •	•	~ /	171 307

MEDICAL DEPARTMENT PERSONNEL SUMMARY

April 30, 1952

·																·		
JATOT	17.0		.1	į,	5	€*3	1 4	, C	)	1	.3	. 1	•	• •	C		• • •	
		58	155	19	13	C)	, 7	1	7	]	- 1	·~ i	7	1	1	7	1	271
Others	J	_	8															6
Adm. & Assistant	7																	2
Hecords Supv.	1																	]
stotinst		5.4	7	ò	.7	.3												77
Health Educator				-												Г		1
neiretined				2														2
Soc. Serv. Couns				3			1	ŀ										3
Kitchen Worker			9															00
Соок			Ę															5
Dietitian		Г	2													Γ		2
Pharmacist			7															7
General Clerk	t	9.649	10.5		7.6		£££*	.250	•250	057*	052*	<u> </u>	.333			Ţ		33
Telephone Opr.	3																	3
office Mach.Opr.		Ţ																1
Steno-Typist			7	7														6
Secretary																		1
.redT .vddoeT		ד	7															7
TechBac. Lab.			1															1
Tech X-Ray			7		7													5
vrotarodal aill			5.6				•2	,2	:2			5	9.					8
Orderly & Am.Dr.	Н			L	11	$\vdash$	_	-	Н		-	H	Н		L	┡	ŀ	
Nurse Aides		2	2 6	П				$\vdash$	Н		-	H	Н	<del> -</del>	H	$\vdash$		5 6
Anesthetists	Н		2	-	H	┝	-	$\vdash$	Н	-	-	-	<del> -</del>	⊢	-	$\vdash$	$\vdash$	25
Nurses	2	8	603	8		2	2		1 7		7		9			6		6601
Physicians					. 7		. 2	1	,1	.1	<u></u>	2		H	H	.2		7 21
	H	3	2	Η	2		-	-	$\vdash$	<u> </u>	<u></u>	-	$\vdash$	$\vdash$	-	-	-	
	Department Admin	Industrial	Hospital	lic Health	[ndustria]	lic Health		<del>-</del> B	Q-	H-	4-	运	Α-	te Bluffs		ပု	J 4	TOTAL
	Dep	Indu	ilosi	Public	Indu	Public	300	100-B	100-D	100	100-F	200-E	200-11	Thite	101	100-C		
		69.	17	-							ea.	17	8	ùτ.	ŢΊ	įn	Ó	
		00	π									,						

\* Three part-time nurses included

Number of employees on roll:
Beginning of month 273
End of month 271
Net decrease 2



#### RADIOLOGICAL SCIENCES DEPARTMENT

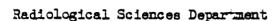
#### **APRIL 1952**

#### Summary

There was no Class II radiation incident. There was an unprecedented total of 13 Class I incidents. Two of these were connected with the presence of intensely radicactive particles in the Redox Area, under conditions which raised probably insoluble questions of possible local overexposure. All departments concerned were actively engaged in a cooperative effort to solve this new particle problem.

The particle picture at the Works was further confused by a shower of activity from the Nevada tests. With these exceptions, personnel monitoring and environmental hazard monitoring results showed no notevorthy deviation from established patterns.

The applied research in biophysics and biology proceeded satisfactorily. The device for detection of ruptured slugs by measurement of noble gas activity gave encouraging results. The further practical development of this proposal was transferred to other channels.



#### RADIOLOGICAL SCIENCES DEPARTMENT

#### APRIL 1952

#### Organization

The month end force of 362 included 25 supervisors, 86 engineers and scientists, 16 clerical, and 235 other personnel.

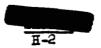
The net decrease was one.

#### General

The deposition of ruthenium radioactive particles in the Redox Area continued to be troublesome. The extent of the hazard was confused by the arrival of particles from the Nevada tests. However, some local particles of extremely high activity were discovered. These gave rise to two radiation incidents.\*

The noble gas activity method for slug rupture detection was successfully demonstrated. The signal was hardly spectacular with the apparatus coupled to a riser. Major gains would arise from operation on single or small groups of headers as through the "Christmas Tree" sampler. Development of the system is beyond the proper field of activity of this department. Measures have been taken to have the Manufacturing Department steer further work on it.

Additional reductions in this report have been made. Details of the work of the Radiological Records and Standards Section, omitted here, will be documented in a formal section monthly report because of their fundamental importance in radiation protection. Also sharply reduced is the detail on research and development activities. Established quarterly reports cover these phases more appropriately.



Just after the official report period, the situation closely paralleled the 1947 discovery of active particles, but with ruthenium as the main component. Many ferromagnetic carrier particles were found. It was necessary to postpone some work by major construction forces.





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.

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#### Title

H.G. Rieck and J.W. Healy

Noble Gas Monitor for Ruptured Slug Detection.

H.J. Carter

Improvements in Hot-Wire Anemometers.



#### RADICLOGICAL RECORDS AND STANDARDS SECTION

#### 1. Radiation Monitoring Services

#### General Statistics

	March	April	1952 To Date
Special Work Permits Routine & Special Surveys	910 1438	905 1263	3057 5608
Air Samples	1701	2170	6319
Skin Contamination Cases	93	123	346

Disassembly and decontamination of equipment used in the tritium extraction process were carried out without incident.

On three occasions, major construction personnel entered contaminated work zones in the 200 West Area. No personal contamination occurred in any case. However, such incidents indicate the difficulties in controlling a jig-saw puzzle of operations and construction areas.

#### 2. Standards

There was no Class II radiation hazard incident. The abnormally large total of 13 Class I incidents (#204-216) was recorded. Of these incidents, three occurred in reactor buildings, 5 in the Redox Plant, 2 in process laboratories, and one each in a canyon building, a waste evaporator and a minor construction work area.

By definition of Class I incidents, no overexposure was known to have occurred in this series. However, incident #206 involved the return of a portable survey meter from the Redox Plant with a radicactive particle reading 100 rep per hour contact dose-rate, and #216 indicated the detection of substantial numbers of such particles in the Redox area. Proof that a local overexposure did not take place under such conditions cannot be given.







## 3. Exposure Records

(a) Personnel Meters, and Records	and Photometr	Y	
General Statistics	March	April	1952 To date
Gamma pencils read  Potential overexposures Confirmed overexposures Slow neutron pencils read Potential overexposures Confirmed overexposures Beta-gamma film badges processed Potential overexposures Confirmed overexposures Fast neutron badges processed Potential overexposures Confirmed overexposures	218,240 7 1 698 0 0 43,425 17 2 382 0 0 26	242,398 8 0 1,358 0 48,496 10 0 372 0	818,088 24 3,626 0 184,626 51 6 1,556 0
Lost readings (all causes)	20	39	
(b) Bicassay			1952
1) Plutonium analyses:	March	<u>April</u>	To date
Samples assayed Results over detection limit Maximum d/m/sample Resamples of previous months Maximum d/m/sample	604 3 0.62 5 BDL*	428 0 - 0 BDL*	2,203 9 1.10 6 BDL*
* Below detection limit			
2) Fission Product analyses:	•		
Samples analyzed Results of 10 c/m/sample	586 0	о <del>171</del> 0	2,198 0





EW-24337 Jel

Radiological Sciences Department

## 3) Uranium analyses:

Results of 432 samples were as follows:

## METAL PREPARATION - 300 AREA

	MELAL			The same	L-Day-No	exposure
	End of h	th Day Ex Liter	Number	ug/li Maximum	ter Average	Number Samples
Job description	Max imum	Average	Samples		1.	24
Canning Machining Melt Plant Material Handling Inspection 305 Building Clerical	80 115* 68 61 11	16 14 3 6	37 43 44 32 18 2 0 2	10 12 26 20 8 3	6 8 8 4 2 6	34 40 33 3 2 0
Coverage R.M.U.	6 22	10	4	15	12	# <del></del>

\*Does not include the results on one employee's sample of the concentration of 535 µg/liter. This was not substantiated by his Monday sample.

Before Job  Maximum Av  Car unloading 12	erage 4 Mi Maxim		iles 18 enecus	Merim 11		rage 2 iter) samples	3!	ples
224-U building 271-UR building	<u> </u>			2	7	(-	<b>\</b>	Total
4) Tritium analyses:	<u>42</u>	2-5	<u>5-10</u>	10-20	<u>20-35</u>	35-65		
No.samples-Tritium operations No.samples-Biology laboratory	85 52	34 0	15 0	10 0	3 0	0	0	147 52

## Thyroid Checks

All thyroid checks were below the warning level.



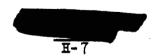
#### Hand Score Summary

There were 56,463 alpha and 79,624 beta hand scores reported. About 0.12% of the alpha scores, and 0.07% of the beta scores were above the warning levels. There was no attempt made to reduce 16 of the high alpha scores and 3 of the high beta scores. Where decontamination was attempted, it was successful.

#### 4. Calibrations

	Number of Routin	e Calibrations	
	March	April	Year to date
Fixed Instruments (gamma)	352	271	1,031
Portable Instruments			
Alpha	300	335	1,135
Beta	468	644	2,066
Gamma (Radium)	1,154	1,442	4,828
X-ray Scanning	35	27	78
Neutron	8	6	35
Total	1,965	2,454	8,142
Personnel Meter			
Beta	737	1,078	3,616
Gamma (Radium)	4,914	8,550	26,936
X-ray	5 <b>,5</b> 78	9,368	28,716
Neutron	28	34	336
Special Film (X-ray)	31	<u> </u>	185
Total	11,288	19,174	59,789
Grand Total	13,605	21,899	68,962







### BIOPHYSICS SECTION

## CONTROL UNIT

## Regional Survey

The	general	findings	are	summarized	in	the	following	table:
-----	---------	----------	-----	------------	----	-----	-----------	--------

		Average
	Activity	Activity Density
SAMPLE TYPE AND LOCATIONS	Туре	/uc/cc
2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		
Drinking Water		_
Benton City Water Co. Well	alpha	1.4 x 10 <sup>-8</sup> _8
Richland, N.Richland, Benton City Wells	alpha	0.5-1.3 x <sub>10</sub> -8
100 Areas	beta	1.5 x 10 <sup>-7</sup>
	beta	<b>=</b> /
Pasco, Kennewick, McNary Dam Backwash Solids-Pasco Filter Plant	beta	8.4 x 10-3 (µc/gm)
	beta	3.9 x 10 7
Backwash Liquids-Pasco Filter Plant		4.4 x 10 <sup>-5</sup> (µc/gm)
Sand Filter-Pasco Filter Plant	beta	
Anthracite Filter-Pasco Filter Plant	beta	8.3 x 10 <sup>-5</sup> (µc/gm)
Other Waters		
300 Area Wells #1, 2, 3	alpha	$1.5 \times 10^{-8}$
300 Area Well #4	alpha	2.3 x 10 <sup>-</sup> 7
Well #4 measured as uranium	U	1.8 x 10 <sup>-7</sup>
48 wells on the reservation	beta	< 5 x 10 <sup>-8</sup> 2
	beta beta	$7.1 \times 10^{-6}$
Columbia River-Hanford Ferry	beta	4 x 10 <sup>-7</sup>
Columbia River-Patterson to McNary		$3-8 \times 10^{-5}  (\mu c/gm)$
Columbia River-Shore Mud	beta	3-0 x 10 - (MC/gm/)
Raw water-Operating areas	beta	< 0.5-6.5 x 1d-7
Pile effluent retention basins	beta	1.7-2.2 x 10 <sup>-3</sup>
Pile effluent retention basins	alpha	< 5 x 10 <sup>−9</sup>
I131 in farm wastes	1131	5.5 x 10 <sup>-6</sup>
I <sup>131</sup> in Columbia River-Hanford	131	$7.7 \times 10^{-8}$
Atmospheric Pollution		-1
Gross alpha emitters	alpha	< 0.4-4.1 x 10 <sup>-14</sup>
Gross dose rate -Separations areas		mma 0.5-4.0 mrep/24 hrs.
Gross dose rate -Residential areas	beta-ga	mme 0.3-1.1 mrep/24 hrs.
Filterable beta - Separations areas	beta	$0.5-1.6 \times 10^{-12}$
I 31 -Separations areas	<sub>7</sub> 131	$0.4 - 4.8 \times 10^{-12}$
I <sup>131</sup> -Separations Stacks	T131	5 curies/day
Active particles -Wash., Idaho, Ore., Mont.	-	<1.0 x 10-3 ptls/meter3
Active particles -Washi, Idaho, Ores, Monte.		0.003-0.2 ptls/meter3
Tritium(as oxides) -Reactor Stacks	T	0.6-1.5 x 10 <sup>-8</sup>
TLICTUM(SB OXIGES) -MAGGGOL DOSCER	4	G-0-1-7 X 20



Regional Survey - continued

SAMPLE TIPE AND LOCATIONS		V. 107 m20
	Activity	Activity Density
Vegetation	Type	μc/gm.
Environs of Separations areas	TTST	9 x 10-5
Residential areas	I131	$< 3-7 \times 10^{-6}$
Eastern Washington and Oregon	<u>1</u> 131	$< 3 \times 10^{-6}$
*Non-volatile beta emitters-Wash.& Ore.	beta	$0.2-9.0 \times 10^{-4}$
Alpha emitters -Separations areas	alpha	$0.3-2.0 \times 10^{-7}$
Alpha emitters -300 Area	alpha	$2.0 \times 10^{-6}$

#### ANALYTICAL CONTROL LABORATORY

Routine analyses were carried out as follows:

Laboratory	Analys	ses Completed _
Type Sample Vegetation Water Solids Air Samples Fluorophotometer Dow Background study Special Survey Samples (RMU) Special Survey Samples (RS)	April 1799 2248 416 230 614 70 50 49	Year to date 6379 8568 1403 1809 2338 177 179 73
Total  Counting Room  Beta measurements (recounts included) Alpha measurements (recounts included) Control points (beta and alpha) Decay curve points (beta and alpha) Absorption curve points Total	5476  6765  4773 3070 5018  167 19793	24433 15052 11530 14929 801 66745



<sup>\*</sup> Significant increases noted throughout the environs during the last week of April were attributed to particulate contamination from Nevada tests. Comparable increases were not noted from particle monitoring results due to the one-week delay caused by exposure period.

EW-24337 Lel



· Radiological Sciences Department

The study of the relationship between activity density of pile waste effluent and tube life made in conjunction with the Pile Technology Water Studies Unit has been completed. After 33 days operation, the activity density of beta emitters in waste effluent was within 20% of that in an adjacent tube operating at stable levels.

The investigation of the increased activity density of reactor effluent from 107-F Reactor showed an increase in the activity density of effluent water of approximately 30-70% for the period 3/25/52 through 4/22/52, due to additional Mn<sup>56</sup> activity.

#### Control Services

Studies were made of natural uranium at Rocky Flats, as a special service. Analysis of beta activity in reactor effluent was proved to be as reliable in 2 ml samples as in 25 ml samples. Radon concentrations in air eluded significant correlation with meteorological conditions.

#### Synoptic Meteorology

		April
Forecasts	Number made	Percent Reliability
Production	90	86.0
24-hour	60	83.8
Special	37	89.2

Daily high and low temperatures averaged 55.2°F, a departure from normal of 1.4 degrees.

Precipitation totaled only 0.13 inch, all but 0.04 inch of which occurred on the night of the 27th-28th. Normal for April is 0.38 inch.

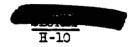
Windlest days of the month were the 2nd, 6th, 19th, and 30th. Strongest gusts at the 50-ft. level exceeded 40 mph on each of these days.

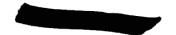
#### ENVIRONMENTAL HAZARDS AND GENERAL STUDIES UNIT

#### Experimental Meteorology

Studies of the trajectories of hypothetical emission clouds and of the records of the outlying stations were continued.

The numerical computations needed in the solution of a diffusion equation for the case where the effluent is emitted from a source aloft during stable conditions have been completed by the Statistics and Computing Services personnel.





#### Geology-Hydrology

The activity density observed in Well 361-T-18 increased during the month while that in Well 361-T-16 decreased so that most of the contaminated water appears to have moved beyond Well 361-T-16. No other significant changes were observed.

The three wells in the 108-B Area continued to show beta contamination and the first samples from two wells drilled near the 107-H retention basin indicated some contamination in one of them.

The level of the water table in the vicinity of the Redox swamp has increased significantly during the past two months. To date there has been a total of 110,000,000 gallons discharged in this area.

#### Soil Science

The ruthenium which is present in second cycle waste passes through a soil column far more easily than other fission products; dialysis experiments indicated that this ruthenium was in an ionic and not a colloidal form. Experiments are being conducted to try to increase the hold up of ruthenium by adjusting the pH and providing a bed of iron filings on top of the soil column.

#### Industrial Hygiene

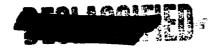
Sampling of the 200 Area stack gas particulates was continued. Preliminary sampling of the sand filter effluent with a cascade impactor indicated a mean particle size of about 0.9 micron. Electrostatic precipitations are being tested for use in order to collect larger samples for examination. The tests indicated an efficiency of 99.7%.

#### Methods

The constant monitor for I<sup>131</sup> in the T Plant stack effluents has been operated continuously during the month with calibration obtained by analysis of the scrubber solution. A small silver reactor has been installed on the sampling system in the T Plant stack building for test of this unit as a possible sampler with high air flow rates.

Further testing of the procedure for analysis of ruthenium on vegetation has indicated apparent differences in yield depending upon the condition





of the vegetation and perhaps upon the initial valence state of the ruthenium.

The noble gas continuous monitor on the 100-DR reactor effluent water stream has operated continuously. A ruptured slug was removed from this reactor on April 23. Monitor data indicated a definite increase in counting rate starting about the first of the month, and increasing linearly to about 6 times background. After removal of the piece, values dropped abruptly to background. An experiment on the injection of uranyl nitrate solution into a tube at the 100-H Area conducted by the Pile Technology Section was also satisfactorily monitored by equipment similar to that used in the 100-DR pile. It is concluded from these two experiments that a feasible slug rupture detection device could be built on this principle.

#### Radiochemical Standards

The reported value of 1.8 times the expected counting rate for dilutions of tritium was revised to 1.15 ± 0.05.

A technique for preparing conducting films of 0.1 mg/cm<sup>2</sup> by reducing silver on the film was developed.

Counter corrections for Ru 106 - Rh 106 were established.

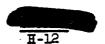
Phosphorus-32 standards were calibrated against Bureau of Standards data. Variations above and below B.S. data by about 4% depended on choice of sample dish type.

#### RADIATION MEASUREMENTS

#### Physics

The effect of scatter in the use of the calibration jigs used in the Calibration building was determined with the use of Victoreen chambers and radium sources. The departure from the inverse square law was slightly greater than the values currently in use would indicate.

The extent of floor scattering on fast neutron measurements with the nuclear track film was investigated. The results indicate an increase of about 30% when the source and detector are near the floor. Measurements of the same kind with a moderated BF<sub>3</sub> counter indicated an increase of 100% when used the same way.





The directional sensitivity of a Hurst fast neutron dosimeter counter was measured. The reading with the source to one side of the chamber was 60% of the reading with the source directly in front.

#### Instrument Development

Resolution of the pulse height analyzer electronic system has been reduced to about 20 KEV full width at half amplitude, and the complete system gives a resolution of about 55 KEV for Polonium alpha particles.

The effect of increasing the length of light pipe on the needle counter was investigated further. A counting rate of about 5000 c/m with  $3\frac{1}{2}$  cm of pipe fell to about 1000 c/m with a 10 cm pipe.

Mechanical and electrical redesign of the C.P. meter was started. It is intended to use a stable, high sensitivity, feed-back circuit instead of the elementary single tube circuit currently "standard" and to draw on past experience with this type instrument to overcome the major mechanical faults.

Energy dependence of a G.E. "Health Monitoring" chamber and an H.M. chamber were investigated. The energy dependence of both chambers was acceptable down to 100 KVP or less. Neither chamber was fully saturated at 250 volts at high dose-rate (240 r/hr).





#### BIOLOGY SECTION

# DECLASSIFED

#### AQUATIC BIOLOGY UNIT

#### Biological Chains

The trout reached maturity and 37 lots of eggs were taken for hatching.

The initial pilot test plankton microcosm study was ended.

#### Ecology

#### Survey of the Columbia River

Activity densities of plankton decreased to approximately one half of last month's values and small fish showed a marked increase. Average values at Hanford were 1.2 x  $10^{-2}$  µc/g of plankton and  $10^{-4}$  µc/g of small fish. Adult bass from the Hanford slough had a maximum of 1.1 x  $10^{-5}$  µc/g in muscle; whitefish from Priest Rapids had a maximum of 3 x  $10^{-5}$  µc/g in muscle and  $\frac{1}{4}.3$  x  $10^{-4}$  µc/g in scales. Counts and measurements were made of migrating juvenile salmon which were abundant along shore. Maximum activity density found in these fish was 3.4 x  $10^{-4}$  µc/g.

#### Effluent Monitoring

Routine monitoring of area effluent was continued. Mortality was excessive (49.7% cumulative) in fish reared in 10% effluent. All lots subjected to dilutions of effluent showed more rapid growth than controls due to higher water temperatures.

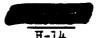
#### BIOLOGICAL SERVICES UNIT

#### Biological Monitoring

Day-old Canada goslings collected from islands on the river showed no radioactivity above background, indicating absence of transfer of activity from mother to young.

Detectable amounts of rutherium radioisotopes were noted for the first time during the month in jack rabbits taken near the 200 Areas, with mean activity densities of 420, 210, and 180 d/m/g noted in feces, lung, and kidney.

Thyroid activity densities of jack rabbits taken in an easterly direction from the 200 Areas increased slightly from last month as those obtained near the Meteorology Tower continued to decrease.





#### Clinical Laboratory

Eight hundred and twenty-three determinations.

#### Microscopy

Routine histological preparations, photomicroscopy, and electron microscopy.

#### Radiochemistry Laboratory

Services included 101 TTA determinations of Pu in biological samples, the preparation of 36 isotope solutions, and approximately 4700 alpha and beta counts.

#### METABOLISM UNIT

#### Animal Metabolism

Rat skin transmitted only 0.001% of the activity from a Pu(+4) nitrate solution in 4N nitric acid. This result, when compared to earlier studies with more concentrated acid solutions, indicated that the immediate reduction of acidity is the most important first step in the treatment of skin contamination with strongly acid plutonium solutions.

#### Distribution and Retention of Tritium in the Rat. II.Compound Separation

Analyses were completed on protein fractions from the pelt and residual carcass of rats sacrificed 4 months and 8 months after receiving tritium oxide. Biological half-lives in the range of 100-300 days were found.

#### Distribution and Retention of Tritium in the Sheep

Tritium activity in sheep blood proteins were followed up to 127 days after administration of tritium oxide. Biological half-lives were 20 days for globulin and 27 days for albumin. Red cell protein activity at 127 days was only slightly lower than the maximum attained about 30 days following injection. This essentially complete retention of activity is a reflection of the metabolic autonomy of the red cell.

#### Percutaneous Absorption of Tritium Oxide

A revision of interpretation of results obtained from exposing small areas of skin to tritium oxide was necessitated by recent exposure to the whole body



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Radiological Sciences Department

surface (uncontaminated air supplied to the lungs). An average specific skin absorption rate constant of 0.8 µc/cm²/min per µc/cc of atmosphere, nearly 3 times that previously reported, was found in man. The increase observed when the whole body was exposed was probably due to differences in skin thickness and passage through the eyes and body orifices.

This amounts to contributions to the total body burden of tritium oxide in a standard man unmasked and working in a tritium oxide contaminated atmosphere of 57% due to inhalation and 43% due to body surface absorption. This observation vitally modifies the ventilation requirements in tritium extraction.

#### Microbiology

#### Determination of RBE's by Microbiological Methods

The application of a somewhat different method of interpreting the bacterial growth curves obtained in the presence of radioactive materials resulted in a higher value of about 1.5 for the RBE of tritium, as compared to P32. This result is now compatible with theory.

#### Destruction of Metabolites by Radiation

Previously reported results with x-irradiation indicated that riboflavin was more rapidly destroyed in a nitrogen saturated solution than in an oxygen saturated solution. These surprising results were confirmed, using tritium irradiation of oxygen—and nitrogen—saturated solutions.

#### Tritium Fixation by Memmalian Tissues

Rats supplied with uncontaminated air via tracheal cannula were subjected to total skin exposure to tritium gas. Approximately 30% of the tritium entering the animal through the skin was retained, the remainder being expired through the lungs, except for about 5% of the tritium organically bound.

#### Plant Nutrition

# Absorption and Translocation of Fission Product and Pile Effluent Radioactivities

Experiments were performed to study the absorption and translocation of chromic and chromate ions (the principal toxic substances in pile effluent water) in been plants. Toxicity was noted with chromic ion in the nutrient solution at levels between 1 and 10 p.p.m. Toxicity with chromate ion was evident at concentrations between 0.1 and 1.0 p.p.m.





## 131 Vapor Absorption and Translocation

A series of three exposures of bean leaves to I was performed with a nitrient medium pH of 7.0. Approximately 0.1% of the total activity found on the exposed leaf was translocated to other plant parts.

#### Plant Metabolism

#### Metabolism of Tritium Oxide by Algae

Previously reported results indicating isotopic fractionation of protium and tritium by growing algae were confirmed.

#### TOXICOLOGY UNIT

Experimental Animal Farm (Toxicology of I131)

#### Low-Level Chronic Effects

Lambing was completed with 110 lambs born to 73 ewes.

Leucocyte and hemoblobin concentrations in lambs receiving 0.15, 5, 15, 45, and 135  $\mu$ c I<sup>131</sup>/day showed no significant variation from control.

Milk from ewes on  $I^{131}$  appeared to contain increasing fractions of the animals'  $I^{131}$  burden as the amount of  $I^{131}$  fed increased.

#### Physiology

The work on therapeutics in plutonium poisoning continued.



## FINANCIAL DEPARTMENT MONTHLY REPORT APRIL, 1952

#### <u>Caneral</u>

Budget estimates for FY 1953 and FY 1954 were submitted to the Appropriations and Budget Committee on April 9. The estimates for FY 1953 represented revisions of estimates submitted to Hanford Operations Office in May, 1951. "High-spot" estimates of the effect of a proposed expansion program on operating costs, personnel requirements, operations inventory levels and acquisitions of operations equipment for FY 1953 and FY 1954 were submitted to the Appropriations and Budget Committee on April 17. The estimates as revised by the Committee were submitted to Hanford Operations Office on April 30.

The retroactive portion of the 3.58% general salary increase, for the period from September 17, 1951 through March 16, 1952 for non-exempt employees and from September 15, 1951 through February 28, 1952 for exempt employees, in the aggregate amount of \$724,977 was paid during the month of April.

An 80-page draft of a proposed Appendix C to the Prime Contract, covering the Company's employment policies, salary schedules, payroll payment practices and benefit plans was completed in April after several months of work on the part of representatives of the Financial Department, Salary Administration Office, Employee and Public Relations Department and Law Department.

A summary of cash disbursements and receipts (excluding advances from AEC) for the months of April and March, 1952 is shown below:

<u>Disbursements</u>	April April	March
Payrolls (net) Materials and Freight Payroll Taxes U. S. Savings Bonds Pension Plan - Employees' Portion Payments to Subcontractors Other Total		\$ 2 384 090 3 415 366 553 783 168 098 60 445 301 003 268 654 7 151 439
Receipts of Months and American Action	க நூக்க முத	
Refund of Advance from Subcontractor Sales to AEC Cost-Type Centractors Rents Hospital Telephone Bus Fares Scrap Sales Refunds from Vendors Other Total	250 000 220 128 125 169 66 598 20 079 10 564 9 699 4 003 19 082	-0- 414 138 140 254 85 214 19 508 10 914 13 604 7 289 59 303 750 224
Net Disbursements	\$ 6 212 744	\$ <u>6 401 215</u>

Advances from AEC increased from \$2,500,000 as of March 31 to \$4,000,000 as of April 30, 1952 and may be summarized as follows:

	April 30	March 31
Cash in Bank - Contract Accounts Cash in Bank - Salary Accounts Cash in Transit Advances to Subcontractors Travel Advance Funds Total	\$ 3 362 255 50 000 462 745 -0- 125 000 \$ 4 000 000	\$ 1 673 785 50 000 401 215 250 000 125 000 \$ 2 500 000
Personnel and Organization	Current	Prior
Personnel Changes During Month Employees at beginning Additions and transfers in Removals and transfers out Employees at close	384 3 (12) 375	Month 391 9 (16) 384
Personnel by Sections at Month-End General	_9	_9
General Accounting Section General Accounts Plant Accounts Accounts Payable Accounts Receivable General	20 25 25 20 <u>3</u> 93	21 26 26 17 3
Payroll Section Weekly Payroll Monthly Payroll General	72 19 - 7 - 98	73 20 8 101
General Cost Section Consolidated Costs and Budgets Utilities and General Services Community Real Estate and Services Radiological Sciences and Other Medical General	16 14 7 3 2 46	2 16 15 7 3 2 45
Manufacturing Cost Section Costs and Budgets General	35 6 41	35 6 41
Engineering Accounting Section Audits Accounts Payable Costs and Budgets General Accounts General	2 23 35 7 4 71 5	4 25 33 7 <u>7</u> 76 7
Rotational Trainees Internal Audit Section	12 375	12 384

Personnel and Organization (continued)		
	Current	Prior
,	Month	<u>Month</u>
Personnel by Job Classification at Month-End		
Exempt	64	65
Non-Exempt		
Accounting Clerks A	4	4
В	6	7
C	9	7 9 16
D	16	16
Business Graduates	26	28
Clerical Working Leaders	10	11
Cost Clerks A	6	. 6
<b>B</b>	6	6
C	9	9
_ <b>D</b>	13	11 6 6 9 13
Field Clerks A	4	4.
<b>C</b>	4	4
General Clerks A	51	50 62
<b>B</b> .	· 62	
C	23	27
מ	7 2	7 2
<b>E</b>	2	2
Office Machine Operators A	12	13
. В	6	6
Secretary A	12 6 1 6	13 6 1 6
В	6	6
Steno-Typist A	5	5
<b>B</b> .	5 15 <u>8</u>	14
C		<u>9</u>
Total	375	384

### Sections' Reports

The monthly reports of the six sections of the Financial Department, as listed below, are shown on the following pages.

	Pages	
General Accounting Section	Ia - 1 taru Ia - 9	
Payroll Section	Ib - 1 thru Ib - 9	
General Cost Section	Ic - 1	
Manufacturing Cost Section	Id - 1 thru Id - 2	
Engineering Accounting Section	Ie - 1 thru Ie - 4	
Internal Audit Section	If - 1 thru If - 2	

## GENERAL ACCOUNTING SECTION MONTHLY REPORT - APRIL, 1952

#### ACCOUNTS PAYABLE

The number of vouchers recorded in April increased to 2,945, amounting to \$2,163,417, as compared with the 2,766 vouchers totaling \$1,846,730 entered in March.

The 1,260 freight bills amounting to \$321,397 paid this month was average but somewhat less than the 1,455 totaling \$341,338 paid in March.

As of April 30 the number of vouchers on hand, including paid and unpaid vouchers, amounted to \$513,691, as compared with \$612,367 on hand at March 31, 1952. This number included 221 paid vouchers and 1,279 unpaid vouchers retained for the following reasons:

Completed but not yet due for payment Receiving reports not received in Accounts Payable Newly received invoices, unaudited and unrecorded	711 284 149
Purchase orders not received in Accounts Payable Discrepancies between invoices and purchase orders,	140
receiving reports, etc.	98
Settlement of shortage or damage claims Other	70 48
Total	1 500

A review of purchase order alterations issued by Purchasing was made this month. It was noted that many of these were for small amounts and probably need not have been issued, as the change effected by the formal alteration could have been handled through correspondence. This matter was discussed with the Manager, Purchasing and Stores Section, and is now being investigated by him.

Outstanding deposits on returnable containers at April 30, 1952, totaled \$35,590. This amount includes deposits made as far back as 1947 and may be segregated by year paid as follows:

Year Paid	Number Of Containers	Amount
1947 1948 1949 1950 1951 1952	6 9 34 131 1 135 1 228	\$ 150 200 655 1 853 14 609 18 123
· .	2 543	\$35 590

#### ACCOUNTS PAYABLE (CONTINUED)

A report of returnable containers on hand, including those on which deposits are made and those on which no deposits are made, is forwarded to Purchasing and Stores each month, and they are following for the eventual return of these containers.

#### ACCOUNTS RECEIVABLE

The Accounts Receivable balance at April 30, 1952, amounted to \$589,999. Balances of all subsidiary accounts, except Safety Shoes, were reduced during April, and the total reduction in accounts receivable balances was approximately \$20,000.

Responsibility for accounting for revenue due from North Richland Commercial Facilities was transferred from Engineering Accounting, effective April 1, 1952. All contracts were reviewed with respect to rental terms, and the necessary records and controls were established to record receipt and verify the correctness of monthly sales reports and rental payments.

Uncollectible accounts in the hands of collection agencies on March 31, 1952, numbered 174 and totaled \$19,503. One additional account, totaling \$139, was referred to the collection agency in April. Nine accounts were collected in April, totaling \$50, half of which was remitted to General Electric. Two accounts, totaling \$42, were deemed uncollectible by the agency and were returned. At April 30, 1952, 164 accounts, totaling \$19,550 were in the hands of collection agencies.

of the 6,047 houses and 1,082 dormitory rooms on which rent is being collected, 5,133 house rentals are paid through payroll deductions and 914 are paid by cash, and 863 dormitory rooms are paid through payroll deductions and 219 by cash.

Kadlec Hospital out-patient invoices numbered 2,236, amounting to \$10,741, as compared to 2,292 amounting to \$10,930 in March. In-patient revenue decreased \$7,947 in April, as compared to March, primarily as a result of reduced patient-day census. Sales of \$69,436 were booked in April, and cash receipts totaled \$71,251, resulting in the receivable balances being reduced approximately \$2,000, from \$147,017 at March 31 to \$145,032 at April 30, 1952.

In April several recommendations made by the Internal Audit Section relative to accounting for Kadlec Hospital accounts receivable were acted upon.

#### GENERAL ACCOUNTS

Advance from the Atomic Energy Commission at April 30, 1952, amounted to \$4,000,000, an increase of \$1,500,000 from the amount at the end of last month. This advance has been applied as follows:

	<u>April</u>	March
Cash in Bank - Contract Accounts Cash in Bank - Salary Accounts	\$3 362 255 50 000 462 745	\$1 673 785 50 000 401 215
Cash in Transit Advances to Subcontractors Travel Advance Funds	462 (45 -0- 125 000	250 000 125 000
Total	\$4 000 000	\$2 500 000

A report, Average Per Diem Travel and Living Expenses, for the period January 1, 1952, through March 31, 1952, was issued in April. This report provided department managers with detailed information, on a total and average per diem basis, of traveling and living expenses incurred by employees in their department and enabled them to compare expenses of each employee with department and plant averages. This report is to be issued on a monthly basis in the future.

Considerable time was spent this month in revising certain reports, including the Report of Commitments, Expenditures and Reimbursements, Inventory report, and Excess Materials report.

The full responsibility for reconciling sub-captions of the General Maintenance and Spare Parts inventories with control balances in the General Ledger was assumed by General Accounts this month.

The balance in the Travel Advance account was reduced by the amount of \$4,768 in April, due largely to closer follow-up of outstanding advances.

Current month charges to the Travel and Living Expense Variation account totaled \$1,913, a decrease of \$151 from March. These charges represented entertainment expense of \$1,017 and the excess of amount reimbursed employees over amount billed to the Atomic Energy Commission of \$896.

#### PLANT ACCOUNTS

The Atomic Energy Commission approved a recommended change in accounting for plant and equipment in April. This change consisted of establishing two groups of items: Catalogued Plant and Uncatalogued Plant. Catalogued Plant includes that class of plant investment, the individual items of which are readily identifiable

#### PLANT ACCOUNTS (CONTINUED)

and to which serial or catalogue numbers are often assigned. Uncatalogued Plant includes items which it is not practical to control individually, such as office furniture, minor items of shop and laboratory equipment, etc. Each year's acquisitions of Uncatalogued Plant is to be segregated by type, is treated as one plant unit, and charged off to reserve when fully depreciated.

Furniture and fixtures used in the North Richland barracks, houses, and commercial facilities, as well as those in the custody of Vitro Corporation and C. T. Main, were transferred to the Atomic Energy Commission during the month. Value of this equipment was:

<b>.</b>	Asset	Reserve	Net
Construction Camp Furnishings Vitro Corporation Chas. T. Main	\$395 608 193 302 25 376	\$386 391 140 190 4 860	\$ 9 217 53 112 20 516
Total	\$614 286	\$ <u>531 441</u>	\$ 82 845

Office Furniture and Equipment on General Electric books used by the Atomic Energy Commission and their contractors at North Richland, excluding that in custody of General Electric Company, will be transferred to the Atomic Energy Commission after completion of inventories in May, 1952.

Field inventory personnel were permanently established in the 100, 200, and 700-1100 Areas one year ago this month. As a result of this work, plant records have been adjusted in the amount of \$2,443,750. These adjustments consisted of reclassifying plant and equipment from one account to another (\$1,879,174), correcting errors of duplication and emission in the original plant appraisal (\$306,446), and the adjustment of records to agree with physical inventories (\$258,130). Complete inventories were taken of Instruments - Measurement and/or Control, Health Instruments, and Laboratory Equipment in the 100-B, 100-DR, 100-H, and 200-E Areas, and part of 300 Area.

In an effort to reduce the balance in Unclassified Property, one clerk of Plant Accounts spent three weeks assisting Project Engineering Unit and others with the unitization of projects.

The Atomic Energy Commission was furnished complete listing on the 100-H production plant and related facilities, including the value of assets, accrued reserves, and annual depreciation rates by units of property. This information was requested by the Atomic Energy Commission Controller through the Hanford Operations Office. We were informed that the Atomic Energy Commission will use this information in connection with their examination of depreciation rates, and the development of an over-all depreciation policy for all Atomic Energy Commission installations.

	April	March
Accounts Payable	4 al c l.am	h ood =03
Balance at Beginning of Month	\$ 246 427	\$ 296 781
Vouchers Entered	2 163 417	1 846 730
Cash Disbursements	2 176 499 DR	1 903 495 DR 6 411
Cash Receipts Other	2 450	-0-
Ocher	505	
Balance at End of Month	\$ 236 300	\$ 246 427
Number of Vouchers Entered	2 945	2 766
Number of Checks Issued	1 758	1 760
	_ 1/0	"— <b>,</b> • •
Number of Freight Bills Paid	1 260	1 455
Amount of Freight Bills Paid	\$ 321 397	\$ 341 338
	, ,	
Number of Purchase Orders Received	1 285	1 592
Value of Purchase Orders Received	<b>\$</b> 571 146	\$ 673 012
•		
Cash Disbursements		11 1 40 -
General	\$5 302 417	\$4 455 683
Engineering	1 635 649	2 695 756
<b>m</b> . <b>L</b> . <b>1</b>	h( ann a((	45 151 kgo
Total	\$ <u>6 938 0<del>6</del>6</u>	\$ <u>7 151 439</u>
Mark 1.7 1 mm 1.1 h	to Con hab	4- 1
Material and Freight	\$2 619 434	\$3 415 366
Lump Sum and Unit Price Subcontracts	8 503	-0-
CFFF Subcontracts		267 745
Labor Others	-0- -0-	33 258
Payrolls (Net)	2 930 683	2 384 090
Payroll Taxes	768 218	553 783
U. S. Savings Bonds	195 235	168 098
Pension Plan - Employees' Portion	71_928	60 445
All Other	344 065	268 654
		200 074
Total	\$6 938 066	\$ <u>7 151 439</u>
Number of Checks Written		
General	1 758	1 760
Engineering	1 079	1 065
20 (10 m)	0.000	0.005
Total	2 837	2 825

	<u>April</u>	March
Cash Receipts		
General	\$8 178 417	\$6 399 653
Engineering	448 120	67 926
Total	\$8 626 537	\$6 467 579
Detail of Cash Receipts		
Advances from AEC	\$7 901 215	\$5 717 355
Refund of Advances to Subcontractors	250 000	-0-
Sales to AEC Cost-type Contractors	220 128	414 138
Rents	125 169	140 254
Hospital	66 598	85 214
Telephone	20 079	19 508
Scrap Sales	11 042	10 914
Bus Fares 6	10 564	13 604
Miscellaneous Accounts Receivable	9 283	19 165
Refunds from Vendors	4 003	7 289
Utilities	3 198	3 379
Employee Sales	788	399
Educational Program	93	1 262
Income from Special Funds	-ó-	29 941
Other	¥ 377	5 <b>1</b> 57
Total	\$8 626 537	\$6 467 579
Bank Balances at End of Month		
Chemical Bank & Trust Company - New York		
Contract Account	<b>\$</b> 489 684	<b>\$</b> 158 656
Seattle - First National Bank - Richland		•
Contract Account	2 042 307	866 278
U. S. Savings Bond Account	260 736	209 646
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000°	30 000
Travel Advance Account	61 184	49 284
Seattle - First National Bank - Seattle		· ·
Escrow Account	5 875	5 875
National Bank of Commerce - Richland	•	
Contract Account	830 265	648 850
Total	\$3 740 051	\$ <u>1 988 589</u>

	Apr11	March	
Accounts Receivable	_		
AEC Cost-type Contractors	\$ 307 964	\$ 318 670	
Hospital	145 032	147 017	
Rents	57 049	60 919	
Equipment Sales to Facilities	44 081	44 633	
Miscellaneous Services	17 659	18 929	
Telephone	11 559	12 722	
Utilities	5 742	6 228	
Safety Shoes	913	720	
Sub-total	589 999	609 838	
Reserve for Bad Debts	43 428 CR	43 819 CR	
General Ledger Balance	\$ 546 571	\$ 566 019	
AEC Cost-type Contractors			
Number Invoices Issued	15	17	
Amount of Invoices Issued	<b>\$</b> 12 229	\$ 20 642	
Cash Received	53 600	406 070	
Hospital			
Number Out Patient Invoices Issued	2 236	2 292	
Charges During the Month	\$ 69 436	\$ 77 573	
Collections - Cash	66 598	85 214	
- Payroll Deductions	5 438	5 895	
Rents			
Houses			
Number Houses Occupied	6 047	6 051	
New Leases and Lease Modifications	132	69	
Lease Cancellations	125	<del>5</del> 8	
Charges During the Month	\$ 274 225	\$ 274 844	
Collections - Cash	41 064	43 042	
- Payroll Deductions	231 .764	231 357	
Dormitories			
Number Rooms Occupied	1 082	1 080	
New Assignments	89	76	
Removals	87	84	
Charges During the Month	\$ 15 068	\$ 14 908	
Collections - Cash	2 923	3 215	
- Payroll Deductions	12 467	12 247	
Facilities		•	
Number Facility Leases	119	119	
Revenue	\$ 54 372	\$ 47 160	
And the second of the second o	7 21-	Ψ . ι	

#### Accounts Receivable

v.	Apri	11	March
Miscellaneous Services  Number Invoices Issued  Amount of Invoices Issued  Cash Received		287 930 \$ 160	421 7 051 10 035
Telephones Working Telephones (Excludes Official Telephone Work Orders Processed Charges During the Month Collections - Cash - Payroll Deductions	\$ 42 20	465 262 466 \$ 079 459	5 437 227 43 939 19 508 22 872
	Numi	ber	Amount
Uncollectible Accounts (Total to Date) Accounts Forwarded to Collection Agencie Accounts Returned as Uncollectible Collections	es 	358 \$ 77 139 -1)	37 335 11 492 6 293 -2)
Balance at Collection Agencies - April 30	, 1952	164 \$	19 550

<sup>(1-</sup> Includes 117 accounts collected in full and 22 accounts partially collected.

<sup>(2-</sup> Represents total collections, half of which is remitted to General Electric.

	April	Total To Date
Scrap Sales		
Number of Sales	25	489
Revenue (Excluding Sales Tax) Scrap Sales Those Revenue Calon	\$ 10 139	\$ 446 068
Tract House Sales Revenue to AEC Revenue to GE	699 175	34 148 14 673
Total	\$ 11 013	\$ 494 889

	April	March
Travel Advances and Expense Accounts		
Cash Advances - Beginning of Month Advances During the Month Expense Accounts Submitted Cash Refunded	\$ 25 264 22 817 22 867 4 718	
Cash Advances - End of Month	\$ 20 496	\$ 25 264
Outstanding Cash Advances Current Over 30 Days	\$ 18 299 2 197	\$ 20 846 4 418
	\$ 20 496	\$ 25 264
Traveling and Living Expenses - All Departments Paid Employees Billed to Government Balance in Variation Account at End of Month	\$ 34 599 32 686 25 856	28 537

## PAYROLL SECTION MONTHLY REPORT APRIL 1952

As of April 30, 1952, there were 8,832 employees on the payroll. This represents a net decrease of 72 employees since March 31, resulting from 90 additions to the payroll including 19 employees reengaged with continuous service and 1 transfer from another division of the Company, and 162 removals from the payroll during the month including 8 leaves of absence, 45 illness removals, 6 for lack of work and 1 transfer to another division of the Company.

Authorization for payroll deductions for the cost of safety shoes were received from 183 employees during April. There were 111 open payroll deduction accounts at April 30, 1952.

Due to transfer or reclassification of employees, preferential rates were eliminated in 19 cases of weekly paid employees during the month of April. This left approximately 860 weekly paid employees having preferential rates as of April 30, 1952.

A total of 521 weekly paid employees were scheduled to begin their 1952 vacations in April. To date, vacation notices have been received from 1,031 or 12% of the weekly paid employees.

In the month of April, 926 benefit claims were processed and forwarded to Metropolitan Life Insurance Company. A total of 1,045 checks in the amount of \$63,841.65 covering 817 benefit claims were received from the insurance company and forwarded to employees, hospitals, and surgeons during April. Since December 1, 1950, the effective date of the new insurance plan, employees of the Nucleonics Division have received \$911,897.75 in benefits under the terms of the health insurance portion of the plan.

In April, 217 newly eligible employees were canvassed for participation in the General Electric Pension Plan. Of these, 148 employees elected to participate, 61 employees elected not to participate, and replies have not been received from 8 employees. Applications for one normal retirement pension and one optional retirement pension were prepared and forwarded to the Pension Department during the month.

Payroll Section delivered 784 checks directly to employees rather than through supervision. Of these, 350 salary checks were for area employees whose days of rest were Thursday and Friday; these checks were held in Payroll at the request of the employee's supervision. Termination checks, suggestion awards, etc. accounted for 369 checks and the remaining 65 checks were mailed to employees who have been removed from the roll for various reasons. In addition, approximately 75 salary checks were picked up by a representative of Employee and Public Relations for delivery to employees absent due to illness.

Gernishments against four employees were received during April. Of the three garnishments pending as of the end of March, one has been released without payment to the court and as of April 30, there were six garnishments pending.

During April, eight salary checks were reported lost. Duplicate checks have been issued to replace three of these lost checks. As of April 30, 1952, six lost check cases were pending. One was lost in March, 1952, and five were lost in April, 1952.

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#### Payroll Section (Continued)

In the month of April, 38 suggestion awards in the aggregate amount of \$965 were paid to Nucleonies Division Employees.

Military Duty Allowances were paid to two employees during the month of April. As of April 30, 1952, 224 employees of the Nucleonics Division had entered Military Service

Two patent award payments totaling \$50.00 were made during April.

Payments, in the aggregate amount of \$1,500, covering classes for the month of March, were made in April to instructors who teach in the Graduate School of Nuclear Engineering.

In addition to regular payroll addressograph work, 110,000 items were addressographed for other departments and approximately 25,000 items were addressographed at the request of the Atomic Energy Commission for the United States Census Bureau in connection with the survey being conducted by them.

- U. S. Savings Bonds having a maturity value of \$43,050 were withdrawn from the Stock Bonus Plan by 107 employees during the month of April.
- U. S. Savings Bonds purchased under the Stock Bonus Plan during the years 1948, 1949 and/or 1950 were withdrawn by 51 participants. Checks covering the income earned at December 31, 1951 on the forfeited stock which had been contingently credited to their accounts were delivered to the employees.

Custody receipts were reported lost by six employees during April.

Payroll deductions for Red Cross contributions which amounted to \$6,922.48 were made in April from salaries of 1,300 weekly paid employees and 749 monthly employees.

During April, copies of General Electric Company's Annual Report for the year 1951 were forwarded to employees' home addresses.

Total gross payment as of April 25 to General Electric employees performing construction work for the period September 1, 1947, through September 30, 1951, is \$132,217.91 for 1,108 employees excluding 52 checks in the total gross amount of \$2,066.62 which are being held by Payroll because addresses of these former employees are not available and 2 checks totaling \$1,099.69 for deceased employees which have not been prepared due to legal requirements. Total retroactive payments after the remaining 54 checks are disbursed will be \$135,384.22 for 1,162 employees. As of April 25, 73 checks in the net amount of \$2,487.48 are outstanding.

Federal and State payroll tax reports for the first quarter of 1952 were prepared and mailed to the Social Security Accounts Division, Schenectady for distribution to the various Tax Sommissions. Oregon State Income Tax withheld from employees claiming residence in that state was paid to the Oregon Tax Commission.

The retroactive portion of the 3.58% general salary increase, for the period from September 17, 1951 through March 16, 1952 for non-exempt employees and from September 15, 1951 through February 28, 1952 for exempt employees, in the aggregate mount of \$724,977 was paid during the month of April. Payments to active mployees amounted to \$689,062 for 8,824 employees and payments to 811 amployees who have been removed from the payroll amounted to \$35,915.

#### Payroll Section (continued)

Time recorders which have been installed in the gate house of the 300 Area and in Buildings W-10 and W-20 will be used by weekly paid employees beginning Monday, May 12, 1952.

Preparation for transition to the IEM method of payroll operation is progressing satisfactorily. During April, a meeting was held with representatives of the Statistical and Computing Services Section and a representative of the Atomic Energy Commissic to explain the general procedure to be used under IBM system of payroll operations.

An 80-page draft of a proposed Appendix C to the Prime Contract, covering the Company's employment policies, salary schedules, payroll payment practices and benefit plans was completed in April after several months of work on the part of representatives of Payroll Section, Salary Administration Office, Employee and Public Relations Department and the Law Department.

#### Bank reconciliations completed in April were:

Weekly Salary through #294, week ended April 13, 1952 Weekly Salary Vacation through #294, week ended April 13, 1952 Bond Account - March, 1952 Monthly Payroll #67, March, 1952

#### Payrolls reimbursed were as follows:

Weekly Salary through April 27, 1952 Mouthly Salary through April, 1952

#### Payroll Section

Timployees and Payroll   Employees on payroll at beginning of month   Additions and transfers in   90   7   83   6   80   15   15   15   15   15   15   15   1	STATISTICS		Monthly	Weekly
Employees on payroll at beginning of month Additions and transfers in 90 7 83 (139)  Femovals and transfers out (160) (23) (139)  Transfers from weekly to monthly payroll 15 (15)  Transfers from monthly to weekly payroll (8) 8 8  82  2 076 5 756  Mumber of Employees April 3510 3 493  Bargaining group - HAMEC 3510 3 493  Bargaining group - HAMEC 55 56 710  Two Flatoon Firemen 55 56  607 607  Other weekly - non-bargaining 2577 2 2 648  Executive, administrative and operating 1 490 1 515  Professional 517 492  Other monthly 14 22  Total 8832 8904  Mumber of Employees  Engineering 1 645 1 706  Manufacturing 3 131 3 145  Utilities & General Services 2 337 2 233  Community 2 11 203  Real Estate & Services 325 330  Financial 375 384  Employee & Public Relations 107 109  Radiological Sciences 363 363  Medical 26 24  Law 7 7 7  Accountability 22 22 22  Technical Personnel 13 8832 8904  Overtime Payments  Weekly paid employees \$ 75 902 \$107 438 8904  Number of Changes in Salary Rates		Total	Payroll	Payroll
Additions and transfers in  Removals and transfers out  Removals and transfers out  Removals and transfers out  Removals and transfers out  Transfers from weekly to monthly payroll  Employees on payroll at end of month  Employees on payroll at end of month  Removals and payroll at end of month  Removals and payroll  Employees on payroll at end of month  Removals and payroll  Removals and payro		8 904	2 085	6 819
### Removals and transfers out		90	7	83
Transfers from weekly to monthly payroll Transfers from monthly to weekly payroll Employees on payroll at end of month    8 832   2 076   5 756	·	(162)	(23)	
Transfers from monthly to weekly payroll Employees on payroll at end of month	Transfers from weekly to monthly payroll			
Sumber of Employees			(8)	8
Bargaining group - HAMTC   3 510   3 493     Bargaining group - Building Services   68   71     - Two Flatcon Firemen   55   56     - Hanford Guards   601   607     Other weekly - non-bargaining   2 5777   2 648     Executive, administrative and operating   1 490   1 515     Professional   517   492     Other monthly   14   22     Total   8 832   8 904     Number of Employees   2 837   2 323     Engineering   1 645   1 706     Manufacturing   3 131   3 145     Utilities & General Services   2 337   2 323     Community   211   203     Real Estate & Services   325   330     Financial   375   384     Employee & Public Relations   107   109     Radiological Sciences   363   363     Medical   270   274     General   26   24     Law   7   7     Accountability   22   22     Technical Fersonnel   13   14     Total   8 832   8 904     Overtime Fayments   4 8 832   8 904     Number of Changes in Salary Rates   103 465     Number of Changes in Salary Rates   100 1     Number of Changes in Salary Rates   100 1     Manufacturing   3 131   3 145     Salary Rates   3 103 465   3 10 853     Summer of Changes in Salary Rates   100 1     Rational Figure   3 10 1     Salary Rates   100 1     Sa		8 832	2 076	6 756
Bargaining group - HAMTC   3 510   3 493     Bargaining group - Building Services   68   71     - Two Flatcon Firemen   55   56     - Hanford Guards   601   607     Other weekly - non-bargaining   2 5777   2 648     Executive, administrative and operating   1 490   1 515     Professional   517   492     Other monthly   14   22     Total   8 832   8 904     Number of Employees   2 837   2 323     Engineering   1 645   1 706     Manufacturing   3 131   3 145     Utilities & General Services   2 337   2 323     Community   211   203     Real Estate & Services   325   330     Financial   375   384     Employee & Public Relations   107   109     Radiological Sciences   363   363     Medical   270   274     General   26   24     Law   7   7     Accountability   22   22     Technical Fersonnel   13   14     Total   8 832   8 904     Overtime Fayments   4 8 832   8 904     Number of Changes in Salary Rates   103 465     Number of Changes in Salary Rates   100 1     Number of Changes in Salary Rates   100 1     Manufacturing   3 131   3 145     Salary Rates   3 103 465   3 10 853     Summer of Changes in Salary Rates   100 1     Rational Figure   3 10 1     Salary Rates   100 1     Sa	Number of Employees	April		March
Bargeining group - Building Services				3 493
- Two Platoon Firemen 55 56 - Hanford Guards 601 607 Other weekly - non-bargaining 2 577 2 648 Executive, administrative and operating 1 490 1 515 Professional 517 492 Other monthly 14 22 Total 8832 8 904  Number of Employees Engineering 1 645 1 706 Manufacturing 3 131 3 145 Utilities General Services 2 337 2 323 Community 2 211 203 Real Estate & Services 325 330 Financial 375 384 Employee & Public Relations 107 109 Radiological Sciences 363 363 Medical 270 274 General 26 24 Law 7 7 7 Accountability 22 22 Technical Personnel 13 14 Total 832 8 904  Cvertime Payments Weekly paid employees 3 75 902 Mumber of Changes in Salary Rates				
- Hanford Guards 601 607 Other weekly - non-bargaining 2 5777 2 648 Executive, administrative and operating 1 490 1 515 Professional 517 492 Other monthly 14 22 Total 8 832 8 904  Number of Employees  Engineering 1 645 1 706 Manufacturing 3 131 3 145 Utilities General Services 2 337 2 323 Community 211 203 Real Estate & Services 325 330 Financial 375 384 Employee & Public Relations 107 109 Radiological Sciences 363 363 Medical 270 274 General 26 24 Law 7 7 7 Accountability 22 22 Technical Personnel 13 14 Total 8 832 8 904  Cvertime Payments Weekly paid employees \$ 75 902 Monthly paid employees 27 563 (a) 33 415 (b) Total \$ 103 465 \$ 140 853		55	•	
Executive, administrative and operating   1 490   1 515   Professional   517   492   Other monthly   14   22   Total   8 832   8 904   Mumber of Employees   1 645   1 706   Manufacturing   3 131   3 145   Utilities & General Services   2 337   2 323   Community   211   203   Real Estate & Services   325   330   Financial   375   384   Employee & Public Relations   107   109   Radiological Sciences   363   363   363   Medical   270   274   General   26   24   Law   7   7   7   Accountability   22   22   22   Technical Personnel   13   14   Total   8 832   8 904   Cvertime Payments   375   5902   \$107 438   Monthly paid employees   \$75 902   \$107 438   \$103 465   \$140 853   Mumber of Changes in Salary Rates				
Executive, administrative and operating   1 490   1 515   Professional   517   492   Other monthly   14   22   Total   8 832   8 904   Number of Employees   1 645   1 706   Manufacturing   3 131   3 145   Utilities & General Services   2 337   2 323   Community   211   203   Real Estate & Services   325   330   Financial   375   384   Employee & Public Relations   107   109   Radiological Sciences   363   363   363   Medical   270   274   General   26   24   Law   7   7   7   Accountability   22   22   22   Technical Personnel   13   14   Total   8 832   8 904   Cvertime Payments   \$75 902   \$107 438   Monthly paid employees   \$75 902   \$107 438   \$103 465   \$140 853   Number of Changes in Salary Rates	Other weekly - non-bargaining	2 577		2 648
Professional				1 515
Total   14   22   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   804   8   8   8   8   8   8   8   8   8		517		492
Number of Employees   Engineering	·			•
Engineering 1 645 1 706 Manufacturing 3 131 3 145 Utilities & General Services 2 337 2 323 Community 211 203 Real Estate & Services 325 330 Financial 375 384 Employee & Public Relations 107 109 Radiological Sciences 363 363 Medical 270 274 General 26 24 Law 7 7 7 Accountability 22 22 Technical Personnel 13 14 Total 8832 8904  Cvertime Payments Weekly paid employees \$ 75 902 \$107 438 Monthly paid employees \$ 75 902 \$107 438 Monthly paid employees \$ 75 902 \$140 853  Number of Changes in Salary Rates	Total	8 832		8 904
Engineering 1 645 1 706 Manufacturing 3 131 3 145 Utilities & General Services 2 337 2 323 Community 211 203 Real Estate & Services 325 330 Financial 375 384 Employee & Public Relations 107 109 Radiological Sciences 363 363 Medical 270 274 General 26 24 Law 7 7 7 Accountability 22 22 Technical Personnel 13 14 Total 8832 8904  Cvertime Payments Weekly paid employees \$ 75 902 \$107 438 Monthly paid employees \$ 75 902 \$107 438 Monthly paid employees \$ 75 902 \$140 853  Number of Changes in Salary Rates	Number of Employees			. *
Manufacturing       3 131       3 145         Utilities & General Services       2 337       2 323         Community       211       203         Real Estate & Services       325       330         Financial       375       384         Employee & Public Relations       107       109         Radiological Sciences       363       363         Medical       270       274         General       26       24         Law       7       7         Accountability       22       22         Technical Personnel       13       14         Total       8 832       8 904         Cvertime Payments       \$ 75 902       \$107 438         Monthly paid employees       \$ 75 902       \$107 438         Monthly paid employees       \$ 75 903       \$140 853         Number of Changes in Salary Rates       \$103 465       \$140 853		1 645		1 706
Utilities & General Services 2 337 2 323 Community 211 203 Real Estate & Services 325 330 Financial 375 384 Employee & Public Relations 107 109 Radiological Sciences 363 363 Medical 270 274 General 26 24 Law 7 7 7 Accountability 22 22 Technical Personnel 13 14 Total 8832 8904   Cvertime Payments Weekly paid employees \$75 902 Monthly paid employees 27 563 (a) 33 415 (b) Total  Number of Changes in Salary Rates		<u>-</u>	•	
Community				
Real Estate & Services   325   330     Financial   375   384     Employee & Public Relations   107   109     Radiological Sciences   363   363     Medical   270   274     General   26   24     Law   7   7     Accountability   22   22     Technical Personnel   13   14     Total   8 832   8 904      Overtime Payments   \$75 902   \$107 438     Monthly paid employees   \$75 902   \$107 438     Monthly paid employees   \$75 902   \$107 438     Total   \$103 465   \$140 853      Number of Changes in Salary Rates				
Financial 375 384 Employee & Public Relations 107 109 Radiological Sciences 363 363 Medical 270 274 General 26 24 Law 7 7 7 Accountability 22 22 Technical Personnel 13 14 Total 8832 8904  Cvertime Payments Weekly paid employees \$ 75 902 \$107 438 Monthly paid employees 27 563 (a) 33 415 (b) Total \$103 465 \$140 853		<b>32</b> 5		
Employee & Public Relations   107   109   Radiological Sciences   363   363   363   Medical   270   274   Ceneral   26   24   Law   7   7   7   7   7   7   7   7   7				
Radiological Sciences       363       363         Medical       270       274         General       26       24         Law       7       7         Accountability       22       22         Technical Personnel       13       14         Total       8 832       8 904         Cvertime Payments       \$ 75 902       \$107 438         Monthly paid employees       27 563 (a)       33 415 (b)         Total       \$103 465       \$140 853    Number of Changes in Salary Rates	Employee & Public Relations	107		109
Medical       270       274         General       26       24         Law       7       7         Accountability       22       22         Technical Personnel       13       14         Total       8 832       8 904         Covertime Payments       \$ 75 902       \$107 438         Monthly paid employees       27 563       (a)       33 415       (b)         Total       \$103 465       \$140 853				363
Ceneral		270		274
Accountability 22 22 Technical Personnel 13 Total 8832 8904  Cvertime Payments  Weekly paid employees \$ 75 902 Monthly paid employees 27 563 Total \$103 465  Number of Changes in Salary Rates	General			24
Technical Personnel	Law	7		
Total 8 832 8 904  Cvertime Payments  Weekly paid employees \$ 75 902 \$107 438  Monthly paid employees 27 563 (a) 33 415 (b)  Total \$103 465 \$140 853	Accountability	22		
Overtime Payments       \$ 75 902       \$107 438         Weekly paid employees       27 563 (a)       33 415 (b)         Monthly paid employees       \$103 465       \$140 853         Number of Changes in Salary Rates	Technical Personnel	13		
Weekly paid employees       \$ 75 902       \$107 438         Monthly paid employees       27 563 (a)       33 415 (b)         Total       \$103 465       \$140 853    Number of Changes in Salary Rates	Total	8 832		8 904
Weekly paid employees       \$ 75 902       \$107 438         Monthly paid employees       27 563 (a)       33 415 (b)         Total       \$103 465       \$140 853    Number of Changes in Salary Rates	Overtime Payments	•		
Monthly paid employees 27 563 (a) 33 415 (b) \$103 465  Number of Changes in Salary Rates		\$ 75 902		\$107 438
Total \$103 465 \$140 853  Number of Changes in Salary Rates			• 4	
	Number of Changes in Salary Rates			
		1 436		2 345

- (a) Payments cover period April 1 through April 30, 1952, except in the case of Patrolmen in the Plant Security & Services Section of the Utilities & General Services Department who were paid for the period March 1 through March 31, 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 March 1 through March 31, 1952, except in the case of Patrolmen in the Plant Security & Services Section of the Utilities & General Services Department who were paid for period February 1 through February 29, 1952.

Gross Amount of Payroll Engineering Manufacturing Utilities and General Services Community Real Estate and Services Other Total	April \$ 872 893 1 550 617 991 678 244 807 532 992 \$4 192 987 (a)	March \$ 730 401 1 282 644 807 611 197 050 437 321 \$3 455 027 (b)
Annual Going Rate of Payroll		
Base	\$40 310 060	\$40 362 577
Overtime	1 180 376	1 769 393
Isolation Pay and Area Differential	1 522 818	1 534 253
Shift Differential	493 598	500 145
Other	29 222	36 617 \$!!4 202 985
Total	\$43 536 074	\$44 202 909
Average Hourly Base Rates  Bargaining group - HAMTC  - Building Services  - Two Platoon Firemen  - Hanford Guards  Other weekly - non-bargaining  Executive, administrative and operating  Professional  Other monthly  Total	\$2.092 1.622 2.056 1.826 1.775 2.983 3.036 2.363	\$2.089 1.629 2.056 1.808 1.784 2.943 3.014 2.408
Average Earnings Rate Per Hour (c) Weekly	April Monthly Total Weekly	March Monthly Total
Engineering \$1.959		\$3.056 \$2.395
Manufacturing 2.283		
Utilities and General Services 1.974		
- Community Real Estate and Services 2.048		
Other 1.802	3.209 2.133 1.801	3.167 2.107
Total \$2.071	\$3.028 \$2.291 \$2.061	\$2.991 \$2.271

- (a) Includes payments for four-week period ended April 20, 1952 in the case of weekly paid employees. Includes overtime for the month at the rate of time and one half on the first \$7,500 of annual base compensation in the case of exempt employees. Includes \$502,879 retroactive general salary increase of 3.58% for the period September 17, 1951 through March 16, 1952 in the case of weekly paid employees and \$222,043 retroactive general salary increase of 3.58% for the period September 15, 1951 through February 29, 1952 in the case of monthly paid employees. Excludes \$1,249 retroactive payments to construction workers for periods of employment between September 1, 1946 and September 30, 1951.
- (b) Includes payments for four-week period ended March 23, 1952 in the case of weekly paid employees. Excludes \$1 332 retroactive payments to construction workers for periods of employment between September 1, 1946 and September 30, 1951. Includes general salary increase of 3.58% paid on a current basis effective March 1, 1952 in the case of monthly paid employees and effective March 17, 1952 in the case of 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.

#### Payroll Section (Continued)

Employee Benefit Plans		
Pension Plan	April	March
Number participating at beginning of month	6 67L	6 603
New participants and transfers in	149	123
Removals and transfers out	(49)	(52)
Number participating at end of month	<del>7</del>	<del>7 )</del> .
unimer barererbasting as and or mount	6 774	6 674
% of eligible employees participating	94.0%	94.2%
Employees Retired Number	April	Total to Date
	2	199(a)
Aggregate Annual Pensions Including	<b>#0</b> 1. ď	#I:9 011.(%)
Supplemental Payments	\$245	\$48 OT4(b)
Amount contributed by employees retired	612	42 708
(a)-Includes 8 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.		
	April	March
Number who became eligible for participation	217	153
Number who applied for participation	1ħ8	101
Number who elected not to participate	61	52
Replies not received	8	-
Immunos Plan (s)		
Insurance Plan (c)		
Personal Coverage	9 000	0.010
Number participating at beginning of month	8 992	9 049
New participants and transfers in Cancellations	71	70 (07)
Removals and transfers out	(19)	(27)
	<u>(92</u> )	<u>(100</u> )
Number participating at end of month	8 952	8 992
% of eligible employees participating	98 <b>.</b> 3 <b>%</b>	98.2%
Dependent Coverage	4 / 4 4	
Number participating at beginning of month	5 603	5 576
Additions and transfers in	53	88
Cancellations	(9)	(8)
Removals and transfers out	(46)	<u>(53</u> )
Number participating at end of month	5 601	<u>5 603</u>
Claims - Disability Benefits (d)		
Number of claims paid by insurance company:	3.4	
Employee Benefits		e de la companya de
Weekly Sickness and Accident	161	153
Daily Hospital Expense Benefits	156	197
Special Hospital Services	182	221
Surgical Operations Benefits	128	155
our Streat ober antonia Deligiting	120	277

<sup>(</sup>c)-The new Insurance Plan was made effective on December 1, 1950

<sup>(</sup>d)-Statistics cover only claims paid and not all claims incurred during the month.

#### Payroll Section (Continued)

Employee Benefit Plans (continued)		
Claims - Disability Benefits (continued)		
Dependent Benefits	April	March
Daily Hospital Expense Benefits	216	253
Special Hospital Services	261	297
Surgical Operations Benefits	239	288
Amount of claims paid by insurance company:		1
Employee Benefits	\$30 075	\$34 204
Dependent Benefits	33 766	40 524
Total Total	\$63 841	\$74 728
Number of Disability Claims Forwarded		
to Insurance Company		
Hospital Benefits		
Kadlec Hospital	563	. 453
Other Hospitals	<u>166</u> 729	122 575
Weekly Sickness and Accident Benefits	197	170
Total	926	745
Claims - Death Benefits (a)	April	Total to Date
Number	1	82
Amount	<b>\$</b> 6 000	\$459 000

#### Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of April 30, 1952, he 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 vac	ation to 1953	}				
		April	_	Tot	al to Dat	e
•	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	12	14	26	28	21	<u> 19</u>
Manufacturing	30	6	36	139	39	178
Utilities and General					_	
Services	7	4	. 11	133	18	151
Community Real Estate						_
and Services	2	1	3	14	14	28
Financial	3	1	4	12	2	14
Employee and Public						
Relations	1	1	2	1	1	2
Radiological Sciences	0	0	. 0	4	, <b>L</b>	8
Medical	1	. 0	1	. 3	1	4
General	· 0	<u> 1</u>	<u> 1</u>	0	<u> 1</u>	<u>_1</u>
Total	<u>56</u>	28	84	<u>334</u>	101	435

<sup>(</sup>a)-Total to date includes all claims under the old and new Insurance Plans and 4 deaths on which accidental death benefits were paid.

• •													
Fayroll Section (Continued)  Employee Benefit Plans (cont	inued)	)			tilii and	ties 1	Comma Res Esta	il ite	•				
	gineer	125	<u>M</u>		Gener Serv		Serv		<u>0t</u>	ther		To	tal
Number participating at													
beginning of month		890	1	513	1	030		273		598	•	<u>1</u> .	304
New authorizations		14	_	28	_	15		3				-	67
										7			
Voluntary cancellations		(8)	l	(12)		(10)		(1)		(6)	)		(37)
Removals and transfers													
out		(19)	1	(8)		(5)	1	-0-		(4)	)		(36)
Transfers in		<u></u>		`7		`5		_1		`3	,		`21
Number participating		<u> </u>	_	<del></del>	_							_	
		00-		0	_					0			
at end of month		882	<b>=</b>	528	=	035	,	276		<u>598</u>		4	319
Percentage of Participat	i on												
G.E. Employees Savings					,						,		
and Stock Bonus Plan		19.5%		+3.0%		38.19	, 1	+5 • 3%	, 📆 1	+5.19	6	1	13.3%
G.E. Savings Plan		7.79	,	11.89	, :	10.3%	,	12.1%		10.19	6	3	10.4%
Both Plans		53.6%	, 1	18.79		14.39			5				18.9%
Bonds issued		•	•										
Maturity value	21.7	950	de Oh	275	456	~75	<b>ታ</b> ግ ነ	100	420	<b>~</b> 7€		245	275
	φ <del>+</del> (						\$14		<b>⊅</b> 3∠	075	ě		
Number		812	1	634	1	078		252		587		4	363
Refunds issued		15		15		11		1	,	13			55
Revisions in authorizati	ons	17		25		15		2		5	•		64
Annual going rate of ded		38											
G.E. Employees Savings		<del></del> .											
		770	4636	01.7	4202	-	400	1. 01.	امما		4-	660	000
and Stock Bonus Plan	\$342	مبت	фото	017	\$303	00/	\$50	434	\$224	232	<b>\$</b> 1		
G.E. Sarings Plan	59	669	192	817	115	076	_ 28	526	48	849		444	937
Total	\$401	787	<b>\$809</b>	634	<u>\$498</u>	683	\$124	960	\$273	081	\$2	108	145
Withdrawal of U. S. Saving	s Bond	ls fr	om G	. E.									
Employees Savings and St	ock Be	onus	Plan			A	pril			Ye	ar	to I	Date
Number of participants w				ls.			107						526
Maturity value of U. S.													/
withdrawn	OC ATTI	ga Du	مس		•	<b>\$</b> 43	050	•				182	725
· · · · · · · · · · · · · · · · · · ·								_	_			•	
Check-off of Union Dues													
Number of Payroll Deduct	4					damaa	llat						
			,										
Authorizations in Effe	<u>CT</u>		-	+-30-	. 22 A	na Te	rmin	TIOI	IS ACC	1171	ons	<u>3-3.</u>	L-72
Hanford Atomic Metal T	rades	Cour	cil	1 2	206		11			49		1	168
Building Service Emplo					-					. ,			
national Union, Loca													
		Inec	سنحل		~		_			_			~~
Department Employees			_		27		2			2			27
Hanford Guards Union,													
the International Gu	ards l	Unior	1				•				-		
of America				_ 2	234		2			15			221
<u>نه</u> یر بیری استین است. - د ا			-			•						_	1 7 6
Total			<u>.</u> .	1 4	67		15			66		1	416

## Payroll Section (Continued)

Employees Who Have Entered Military Service	Tot	al to Date	
	Called to	Volunteered	
	Duty	for Duty	Total
Reserve Officers	21	3	24
Enlisted Reserve	51 6	-0 <del>-</del>	57 6 47
National Guard Selective Service	47	-0-	J <sub>1</sub> 7
Voluntary Enlistments	-0-	90	90
•	. —		
Total	125	<u>99</u>	224
Number of Rent, Telephone and Hospital			
Deductions from Salaries	April		March
House Rent	5 149		5 022
Dormitory Rent	887		875
Barracks Rent	2		189
Trailer Space Rent	-0-	-	143.
Telephone	3 737		3 705
Hospital	590	•	<u>511</u>
Total	10 365		10 1412
Annuity Certificates (For duPont Service)	April	Total	to Date
Number issued	-0-	<u> </u>	84
Suggestion Awards	-0		0/
Number of awards	38		1 386
Total amount of awards	\$965	;	\$27 010
Employee Sales Plan		April	
	Major	Traffic	
	Appliances	Appliances	Total
Certificates issued	9	177	186
		-11	100
Certificates voided	-0-	3	3
		3	3
Certificates voided  Salary Checks Deposited	April	3 Mar	3 ch
		3 Mar nly Weekly	3 ch
Salary Checks Deposited	April Weekly Month	3 Mar nly Weekly	3 ch
Salary Checks Deposited  Richland Branch - Seattle-First	April Weekly Month	3 Mar	3 ch Monthly
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank	April Weekly Month	3 Mar nly Weekly	3 ch Monthly
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank	April Weekly Month 770	3 Mar 11y Weekly 854 758 6 12	3 ch Monthly 854
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce	April Weekly Month 770 11 464	3  Mar.  No. 11  No. 12  No. 12  No. 155	3 ch Monthly 854
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank	April Weekly Month 770	3 Mar 11y Weekly 854 758 6 12	3 ch Monthly 854
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce	April Weekly Month 770 11 464 -0-	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff)	April Weekly Month 770 11 464 -0-	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff) Total	April Weekly Month 770 11 464 -0-	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff) Total  *Week ended 4-20-52 **Week ended 3-16-52	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff) Total  *Week ended 4-20-52	April Weekly Month 770 11 464 -0-	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff) Total  *Week ended 4-20-52 **Week ended 3-16-52  Special Absence Allowance Requests Number submitted to Pension Board	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152 March
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff)  Total  *Week ended 4-20-52 **Week ended 3-16-52  Special Absence Allowance Requests Number submitted to Pension Board  * Absenteeism	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152 March 9
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff)  Total  *Week ended 4-20-52 **Week ended 3-16-52  Special Absence Allowance Requests Number submitted to Pension Board  * Absenteeism Weekly - Men	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152 March
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff)  Total  *Week ended 4-20-52 **Week ended 3-16-52  Special Absence Allowance Requests Number submitted to Pension Board  * Absenteeism Weekly - Men Weekly - Women Total Weekly	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152 March 9
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff)  Total  *Week ended 4-20-52 **Week ended 3-16-52  Special Absence Allowance Requests Number submitted to Pension Board  *Absenteeism Weekly - Men Weekly - Women Total Weekly Monthly	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152 March 9
Salary Checks Deposited  Richland Branch - Seattle-First National Bank North Richland Area Office - Seattle-First National Bank Richland Branch - National Bank of Commerce Out of state banks (Schenectady Staff)  Total  *Week ended 4-20-52 **Week ended 3-16-52  Special Absence Allowance Requests Number submitted to Pension Board  * Absenteeism Weekly - Men Weekly - Women Total Weekly	April Weekly Month 770 11 164 -0- 1 245* 1	3  Mar.  Mar.  Meekly  854 758  6 12  305 455  1 -0-	3 ch Monthly 854 6 291 1 1152 March 9

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# MONTHLY REPORT APRIL 1952

Budget data for FY 1953 and FY 1954 was completed during the month for submission to the Appropriations and Budget Committee. Work is currently underway preparing the quarterly breakdown of the budget for FY 1953 for submission to the AEC.

Summaries of Operating Costs for the Nucleonics Division for the month of March were issued to management on April 16. Departmental cost reports for March were issued to Managers about April 17. Supplementing these reports, letters were issued to department and section managers about April 20 analyzing costs incurred during March and explaining major variations when compared with the previous month. Comparisons of year-to-date costs with amounts budgeted for the period were also included.

Production Cost summaries for the first nine months of the fiscal year together with bogey estimates for the last quarter were issued to Plant Management on April 25, 1952. Also included were bogeys for the 1st Quarter of FY 1953.

A special study of IEM rental billings disclosed that approximately \$21 000 representing rental fees for machines used by Atkinson-Jones had been charged to G.E. in error. This amount was returned to AEC.

As a result of the substantial over-liquidation of costs of the Transportation Section (Bus, Railroad and Equipment), special year-to-date adjustments totaling approximately \$281 000 were made. The standard rates as originally established included provision for Purchasing and Stores expense, accounting and other items of a general overhead nature which are not charged to servicing units under the revised cost accounting system made effective July 1, 1951. Currently, studies are underway to determine what revisions should be made to rates now in effect in the light of current cost trends.

A revised coding system was established to record costs incurred in the Administration Area in order to assist in the discharge of landlord responsibilities of the Utilities and General Services Department. Under the direction of the Accountant, General Cost, considerable work is being done toward establishment of a uniform coding system for use by all Nucleonics Division costs sections. Current revisions such as that outlined above are designed to fit the proposed uniform system.

A portion of the Medical Department fee schedule is being revised to include new laboratory techniques and tests which are now available to the public.

Work was begun in connection with a new report to be issued covering Radiological Sciences Department Appropriation Requests and the necessary codes and routines were established.

Complete information was prepared and submitted to the Manager, Community Real Estate and Services in connection with the buildings and areas for which he has landlord responsibilities.

## MANUFACTURING COST SECTION APRIL, 1952

#### BUDGETS

The Manufacturing Department Budget for FY 1954 and Revision for FY 1953 was completed and reviewed by the A & B Committee as scheduled. Minor revisions resulted from this review. A quarterly breakdown of budgets for FY 1953 was completed and distribution was made to the field supervision through the Section Accountants.

Considerable effort was expended to develop improved budgetary controls that more accurately reflect important overruns or underruns and provide the contributing factors to the deviation.

#### SPECIAL REQUESTS

The requests for billing in connection with this program continued to increase.

A brief procedure to be followed in connection with "Special Irradiations" and "Off-Site A.E.C. Accommodations" was prepared. The distribution of the procedure will be made in month of May.

#### MAINTENANCE AND PLANT IMPROVEMENT

Arrangements were made to accumulate expenditures on buildings for which Metal Preparation and Separations Section have the landlord responsibility. This program was in operation during the month of April in these two sections.

The actual billing for rent, light and heat or space occupancy charges were made to other departments for the month of April, except in the 100 Areas, where they will begin in May.

A list of the details of undistributed cost due to non-receipt of work orders was sent to each of the Sections. With their cooperation the balance has been reduced from \$18,488 on February 24th to \$8,590 on April 27.

All active work orders issued to Utilities and General Services Department by Manufacturing Personnel were reviewed. Authorizations were checked, codes changed where necessary, and some orders cancelled.

#### REPORTS AND RECORDS

The revised "Statement of Operating Costs" for Operation Units of the Separations Section was provided for discussion with Section management. The statement is for the purpose of control by units and sub-units. Costs shown for a unit do not include all costs charged to but not controllable by the unit.

The first "Process Material Inventory Report" was issued during March. Comments and criticisms have been solicited from personnel using the report. Only minor changes have been recommended which will be incorporated in the April report.

#### PRODUCTION COST ACCOUNTING

A summary of information required from Accountability representatives was prepared. The flow of SF Materials through each process center was requested.

Manufacturing Cost forecast for this first quarter of FY 1953 was prepared. The variance of this forecast from budget for the same period was analyzed.

#### REACTOR SECTION ACCOUNTING

At the request of the Operations Unit, four cost meetings were conducted for area supervision during the month. The elements of cost were covered individually and the content and the course of information explained.

The March "Statement of Operating Costs" was presented on the unit responsibility basis outlined in last month's report. July through February costs were recast to the new basis for the Operations Unit in order that their cost graphs may be presented on a uniform basis for the fiscal year 1952.

Methods and procedures for handling the "Landlord Responsibility" were developed and will be put into effect in May.

Cost distribution problems in the areas, D and DR, were studied and a more equitable distribution of joint area costs was developed.

#### SEPARATIONS SECTION ACCOUNTING

Revised "Statement of Operating Costs" for Operations Units was discussed with section management and supervision. Agreement on major points of the statement has been reached.

Reviewed the procedure for fabrication of Spare Parts for stores inventory with field supervision and program was started during April.

The special request program was reviewed and responsibility accepted to coordinate the requests to prepare materials for shipment.

#### METAL PREPARATION SECTION ACCOUNTING

A special report was prepared on process code (603), Machining, from existing information indicating: (1) costs directly controllable at step-one, or foreman level, (2) costs indirectly controllable at step-one level, and (3) costs not controllable at that level. This report shows a comparison of Unit Cost for the previous month, this month and the previous four-months' average. Request for similar reports on other processes have been received and will stimulate interest in cost reduction and control.

The Plant Engineering and Service Unit, with Financial Department Cooperation, has made considerable progress in the preparation of process cost standards, and graphic charts are being prepared to point out variances in actual cost from standard cost.

## ENGINEERING ACCOUNTING SECTION MONTHLY REPORT FOR APRIL, 1952

#### Accounts Payable

A check for \$250,000 was received from Vitro Corporation of America liquidating the advance previously made to that company under authority of Subcontract G-148.

Assignment of CPFF Subcontracts G-148 and G-363, the latter with Chas. T. Main, Inc., to the Commission was effective April 1, 1952. The balance of accrued liabilities existing on General Electric's books at March 31, 1952 relative to these subcontracts were transferred to the AEC in April.

The responsibility of accounts receivable for barracks, trailer spaces and houses in North Richland Camp was assumed by the AEC April 1. Receivables for leases to operators of business houses in North Richland became the function of General Accounting Section.

Seventy cartons of records including accounts payable vouchers, Atkinson-Jones purchas orders and vendors pockets, and completed subcontracts were transferred to Records Control for storage.

Accounts payable vouchers processed during the month numbered 1,383 with an aggregate value of \$1,506,702 as compared to 1,762 in the amount of \$2,562,706 for the previous period.

Brief detail of total cash disbursed in April follows:

Material and Freight Lump Sum	\$ 1 611 855 8 503
Miscellaneous	<u> </u>
	\$ 1 635 649

#### Design Section Cost

Suspense code 202 applicable to Program X - Reactor has been cancelled, effective April 1, 1952. Project CG-494 Design of New Reactor has been established on the Design Section ledgers and costs will be recorded effective April 1, 1952. Total to date costs accumulated against Program X Reactor at March 31, 1952 in the amount of \$80,161 will be included with costs of Project CG-494 at April 30, 1952. The financial status of Program X and Project CG-494 is shown as follows:

	Authorized Funds	April 30, 1952
Program X Water Plant	\$ 30 000	\$ 1 955
Program X Separations Facilities	45 000	976
CG-494 Design of New Reactor	225 000	127 444

Procedures have been established which will result in a better presentation of allocation of manpower. Considerable work has been expended in correction of coding errors which occurred during the last week in March and the first week in April. Much improvement in coding was noted at the last of the period.

#### ENGINEERING ACCOUNTING SECTION

#### Design Section Cost (Continued)

#### Assets and Inventories

Minor Construction Unit's Inventory account has been reduced by fire loss adjustment, transfers to Atomic Energy Commission, transfers to Atkinson-Jones Company and adjustments through the warehousing account, leaving a balance at April 30, 1952 in the amount of \$30,380.68 detailed as follows:

106	Miscellaneous Small Stores Material	\$ 4 696.05
108	Electrical Supplies	25 432.34
110	Paint Supplies	252.29

North Richland coal and oil inventories were transferred to the Atomic Energy Commission during the period in amounts as shown.

North Richland coal inventory	
Beginning balance	\$ 35 234.35
Inventory adjustment to reflect coal pile survey taken at 3-26-52	16 173.81
Balance transfers to Atomic Energy Commission	\$ 51 408.16

North Richland Camp oil inventories had credit balances at the time of transfer due to unbilled amounts by the Atomic Energy Commission of items issued from stock. Balances were transferred as follows:

011	Inventory	- Steam Plant	Storage	(18,664	gal.)	\$ 2 029.3	35 Cr.
011	Inventory	- Gas Station	Storage	(11, 346	gal.)	1 983.0	ol Cr.

#### Travel Advances

The responsibility for travel expense was assumed by General Accounting effective May 1, 1952. One clerk was transferred with the job. In order to expedite the processing of expense vouchers, all records were transferred before April reports were completed. Travel advance account balances will be charged to General Accounting as May business. The status of the account will be reported by General Accounting for April.

#### Project Cost

The following projects were unitized for Plant Accounting during the month:

```
C-290 Spectrometer Fabrication and Installation
M-769 Health Monitoring & Storage Facilities, 111-B Building
```

Financial Closing Statements were issued for the following projects during the month:

C-187-C Redox Test Plant
C-485 Experimental Activated Silica Addition Equipment
MWI-48 Surgical Wing Air Conditioning, Kadlec Hospital

#### ENGINEERING ACCOUNTING SECTION

#### Project Cost (Continued)

Revised Financial Closing Statements were issued for the following projects during the month:

C-178 Construction Camp, 3000 Area

C-198 234-5 Building Program, Phases I, II and III

The following projects were closed on a Preliminary Final Basis during the month:

C-289 Additional Laundry Facilities, 200 West

C-340 P-11 Project (Critical Mass Laboratory)

C-409 Riverland Elevated Water Tank

Special weekly reports of cost by source were started for Project Engineering Unit on the following projects:

C-349 Hot Semi-Works

MWI-38 Pile Technology Metallurgy Laboratory Alteration 234-5 Building

#### Budgetary Control

Considerable time was required to explain the integral parts of the "Budget for Fiscal Year 1954 and Revision of Budget for Fiscal Year 1953". Detailed reports and supplementary information of the Engineering Department's budget were provided to facilitate the plant-wide budget consolidation for submission to the AEC. A quarterly breakdown was also computed for the Fiscal Year 1953 Operating Report.

The effect of the proposed expansion program on the "Budget for Fiscal Year 1954 and Revision of Budget for Fiscal Year 1953" was submitted to the Manager-Finance.

The standard costs recently established for the Design Section and the actual costs for March were analyzed. This first comparison of standard to actual costs revealed minor discrepencies in coding the actual costs to the proper codes; however, this difficulty should be eliminated in the near future. The standard costs, from present indications, appear to be reasonable.

A "bogey estimate" for Technical Section was computed for the months of April through September, 1952.

Technical Section budgeted funds for seven (7) duplicating personnel and two (2) motor messengers were transferred to Utilities and General Services Department for the 4th Quarter, FY 1952. Budgeted funds for fiscal years 1953 and 1954 will be transferred at a later date.

Preliminary work on the preparation of a uniform coding system for the Engineering Department was underway at the end of the month. This effort is in conjunction with all other departments to establish a plant-wide uniform coding system.

#### ENGINEERING ACCOUNTING SECTION

#### Technical Cost

A summary of operating cost for Technical Section was issued to the Manager - Technical on April 16. Detail of operating costs for Technical Section was issued on April 17. Letters analyzing variations in March costs as compared to February were issued to Manager - Technical and the Manager - Finance.

March was the first month that costs were accumulated using the new coding system. It was found that, by changing the complete code from eleven to six digits and accumulating indirect costs by unit instead of by sub-unit, clerical work was reduced yet the required amount of accounting details was still available.

During the month of April all incomplete purchase orders for the Technical Section were pulled from the file and reviewed for proper coding and for conversion to the new coding system; thereby eliminating improper codes on accounts payable vouchers and freight bills when received by the Cost Unit.

## MONTELY REPORT

#### APRIL, 1952

An investigation was made of records and routines used in maintaining financial control over revenue from scrap sales conducted by Surplus, Salvage and Scrap of Stores Unit. As a result of this investigation, a procedure was developed which establishes controls and outlines the responsibilities of General Accounting Section and Purchasing and Stores Section.

A review was made of the use by Nucleonics Division departments of telegrams and night letters dispatched by the A.E.C. Teletype Unit. This review was made to obtain information requested of the A.E.C. by the General Accounting Office. As a result of this study, the following steps are being taken to effect a reduction in the expense of this service: (1) the use of the General Electric teletype network for outgoing messages is being studied; (2) air mail schedules are being prepared by Office Services Unit to encourage the use of air mail letters instead of telegrams wherever practical; and (3) Employment and Employee Services Section is comparing the results obtained from using air mail and night letters.

A telephone and telegraph expense report by department for the month of March, 1952, was initiated and issued. Subsequent reports will be issued monthly by General Accounting Section.

A physical inventory was taken of all known quantities of zirconium metal in the custody of Nucleonics Division. Memorandum control records have been established at laboratory locations for zirconium metal booked in inventory at a nominal value.

A review was made of controls over in-transit documents for operations inventory transactions not completed. Following this review a procedure was written, covering routines to be followed in maintaining control folders in which are filed stores documents and accounting vouchers for inventory transactions not posted in the same amounts to the stock records and to the general ledger. In addition, a procedure is being developed, covering routines to be followed in accounting for, and listing as reconcilable items, all stores documents and accounting vouchers in-transit at physical inventory cut-offs when physical inventories are reconciled to general ledger balances.

Continuous auditing reviews were made of field and clerical work involved in physical inventories being taken by Inventory and Audit of Purchasing and Stores Section. These reviews were made to determine the appropriateness of physical inventory adjustments requested. Purchasing and Stores management will be advised of types of custodial and recording errors and omissions which cause differences between physical inventory values, stock record balances and general ledger balances.

A follow-up study was made of the bus revenue collection procedure, used since February 1, 1952, to determine if it is being adhered to and to determine if, in actual practice, the procedure afforded adequate control over revenue.

Review was made of a procedure for processing claims for damage to Government property. This procedure was issued by General Accounting Section upon recommendations of Internal Audit Section and outlines the responsibilities of General Accounting Section and Insurance Unit in processing claims for damages.

An audit program for a review of Mucleonics Division work order procedures was completed.

#### PLANT SECURITY AND SERVICES SECTION

#### MONTHLY REPORT - APRIL 1952

#### SUMMARY

There was one major injury during the month bringing the total to four for the year to date and a frequency rate of 0.66. The frequency rate for the same period in 1951 was 0.38.

There were seven fire alarms in the industrial areas. A fire in a welding hutment in the 200-East Tank Farm construction area resulted in a \$2000 loss. Losses resulting from the remaining six fires were negligible.

Laundry volume was down slightly in the 200-West Process and 700 Area laundries. The process laundry reduction was due primarily to improved handling of slug failures in the 105 Buildings. The 700 Area reduction resulted from elimination of North Richland dormitory laundry.

The plant mail system operated for the first full month under centralized control. Operating areas are now receiving deliveries on a scheduled basis for the first time.

Approval has been received to proceed with microfilming of vital records. The Contract Unit has been requested to negotiate a contract for the performance of this work.

Savings resulting from forms control and procedures analysis activities were \$120, of which \$579 is annually recurring. Accumulated savings since January 1, 1952 are \$76,188.

Effective April 1, 1952, security responsibilities relative to the Charles T. Main Company and Vitro Corporation of America contracts were transferred to the Hanford Operations Office, AEC, who assumed contract responsibility as of that date.

Exclusion area security classification was removed from the 200-N Area on April 17, 1952.

## PLANT SECURITY AND SERVICES SECTION

#### MONTHLY REPORT - APRIL 1952

#### ORGANIZATION AND PERSONNEL:

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	6	7.	1 (a)	
Patrol and Security	656	652	•	4 (b)
Safety and Fire Protection	150	148.		2 (c)
Office Services (Laundry and Building Services, Clerical Services, Records Control and Procedures Analysis)	333	31:0	7 (d)	. <u> </u>
TOTALS	1,145	1,147	8	6

#### NET INCREASE: 2

#### (a) - Staff

1 - New Hire

#### (b) - Patrol and Security

- 1 Transferred from another Department
- 1 Transferred to another Department
- 4 Terminations

#### (c) - Safety and Fire Protection

- 1 New Hire
- 3 Transferred from other Departments
- 1 Deactivated
- ... 5 Terminations

### (d) - Laundry and Building Services

- 3 New Hires
- 1 Reactivated
- 11 Transferred from other Departments
- 2 Transferred to other Departments
- 3 Deactivated
- 3 Terminations

#### Clerical Services

- 6 New Hires
- 3 Transferred from other Departments
- 3 Deactivated
- 5 Transferred to other Departments

#### Records Control

- 1 Transferred from another Section
- 1 Deactivated
  1 Termination

## SAFETY AND FIRE PROTECTION UNIT

#### Injury Statistics

	MARCI	<u> </u>	APRIL		OMPARATIVE ERIOD 1951
Major Injuries Sub-Major Injuries Minor Injuries Exposure Hours Major Injury F/R Major Injury S/R Penalty Days Actual Days Lost Minor Injury F/R	42 1,574,499 ( (	5 1,1 0.64 0.008 0	1 2 411 481,599 0.67 0.07 75 30 2.77	0.66	2 7 1,165 301,033 0.38 0.08 450 246 2.20
Estimated Medical Treatment Time Required	1,74	0 hours	1,660 ho	urs 6,412 hours	4,716 hours
Industrial Fires			No. of		
Department		Area	Fires	Cause	Loss
Radiological Science Biology Section	es Dept.	100 <b>-</b> F	1	Flammable Liquid	None
Engineering Departmer Project Section Minor Construction		200-E	1	Welding	\$2,000.00
Engineering Departm Technical Section Separations Technol		200 <b>-W</b>	1	Spontaneous Ignit	cion None
Manufacturing Depar Metal Preparation S Power & Maintenance	ection	300	1	Flammable Liquid	5.00
Engineering Departm Technical Section Analytical Unit	ent	300	1	Flammable Liquid	None
Not Chargeable to D	ept.	300	ı	Smoking material	None
Utilities & Gen. Se Transportation Sect Transp. Services Un	ion	Outer	1	Flammable Liquid	None

#### Safety and Fire Protection Activities

Specifications were drawn up covering the approved method of securing and installing the non-slip currucing material for all shower rooms throughout the Hanford Works. Copies of these specifications wall be sent to all Section and Unit heads, with a request that recommendation of the National Safety Council be complied with.

The program committees and special committees from all industrial areas have taken initial action for planning and developing effective safety contests similar to that of the past Maintenance Jarety Derby.

All of the safety award gifts were received and distributed during this period. Very little confusion was experienced in the distribution. Many of the selection certificates that were thought to be terminations were honored because the employee had been rehired by the AEC or some contractor with work on this plant. Approximately 12 gifts were defective and were replaced with others ordered as surplus.

As the result of the reassignment of safety engineers in the 700, 1100 and 3000 Areas, a study was made of a distribution of coverage responsibilities which resulted in specific coverage to each of the various units and sections located in these areas and scheduled days for inspections.

The diaries of the two safety engineers assigned to the subcontractors and Minor Construction safety show they are following previous activities for the time being (except as noted following) or until specific assignments are required from new contracts awarded. The subcontractors having contracts inside of an industrial area are receiving their safety orientation and coverage from the safety engineer assigned to the area. This eliminates the cost of a special construction safety engineer.

The 100-H Area completed a second consecutive year without a lost time injury on April 19. The usual letter of commendation was written all supervisors. Second year pins will be distributed as soon as possible.

The 700 Area completed its third year (not consecutive) without a lost time injury on April 10.

Information relative to the number and seriousness of injuries occurring during the process of unloading coal is being furnished Plant Engineering Service to help justify an installation of more satisfactory and safer unloading equipment.

Seven industrial fires occurred during the month of April. One was a major fire which occurred in the 200 East Tank Farm.

The Fire Department responded to four other fires of interest, as follows:

- (1) A U.S. Army fire occurred in bedding as it was being transported on a truck. The loss was \$171.00. Prompt action by the Fire Department prevented more serious loss.
- (2) On a construction job in the 200-West Area the safety plug flew out of a 5-gallon butane tank. Fire resulted in scrap lumber. It was very fortunate that no one received serious injury.
- (3) A fire in the upholstering of the back seat of a private car was extinguished by the Fire Department, preventing serious loss.

(4) A shed in which wool was being stored, 1/2 mile East of Midway was completely destroyed by fire. The loss was \$2,300. Due to the delayed alarm and the long run the Fire Department did not arrive in time to prevent a total loss.

Building surveys were completed on the following buildings: 183-D, 1703-D, 234-5 and 3705.

Four safety meetings were conducted on fire prevention.

The fire detector system in the new 1703-D Building was inspected and put into operation.

Work on improving the fire safety of 234-5 is proceeding. Partly accomplished is the removal of wood partitions and the writing of a fire fighting procedure.

Wet test was conducted on deluge system in 276-S Jolvent Building.

A schedule was established for testing the auxiliary fire alarm boxes in 222-S.

Corrections are being made to the sprinkler system in the 277-S Building.

The sprinkler system is being installed in the 277-U Building.

The use of oil in grinding of Uranium was studied. The fire hazard would be very great if oil was used as a coolant.

Dry chemical fire extinguishers were recommended for use on gasoline trucks.

The week of April 20th was observed as Spring Clean-Up Week. The response was very good.

#### OFFICE SERVICES UNIT

#### Building and Laundry Services

Plant Laundry - 200-West Area	March	April
Pounds Delivered Pounds Rewash	230,931 26,142	251,421
Total Dry Weight	257,073	267,021
700 Laundry		
Flatwork - Pounds Rough Dry - Pounds Finished - Pounds	67,504 30,142 2,673	52,691 38,213 2,886
Estimated Pieces	131,418	122,86կ
Total Dry Weight - Pounds	100,319	93,790

Monitoring Section - Plant Laundry	March	<u>April</u>
Poppy Check - Pieces Scaler Check- Pieces	179,083 224 <b>,</b> 466	204,693 225,830
	*	<del></del>
Total Pieces	403,549	430,523

#### Clerical Services

Notification was received that the new wing of the 703 Building will be available for occupancy about June 15, 1952. Plans are being made accordingly to move the Duplicating, Mail, and Addressograph Units into this wing as of the above date.

#### Central Mail

The plant mail system operated for the first full month under the new arrangement without incident or any complaints. Many favorable comments have been received as a result of improvements in mail service brought about by the new schedules and centralized control of all mail service.

Because of nation wide strikes and partial walkouts in teletype, telegraph, and telephone service, it has been difficult to maintain satisfactory service to and from Hanford Works. Office Letters were issued to keep users informed and every effort is being made to obtain satisfactory results under the limitations of the strike.

Types and Pieces of Mail Handled	<u>April</u>		March
Internal Postal Registered Insured Special Delivery	1,152,754 73,818 1,269 417 278		932,119 75,378 1,244 347 201
Total Mail Handled	1,225,636	•	1,009,289
Total Postage Used	\$2,609.56		\$2,224.52
Total Teletypes Handled Total Store Orders Handled	2,439 464		7 <b>,</b> 345 488

#### Office Equipment

The AEC has not yet submitted the FY 1953 Office Equipment Budget for prime contractors other then General Electric Company. The budget for General Electric Company was reviewed and some of the items pertaining to additional requirements were questioned. A survey of utilization of office equipment was initiated the latter part of the month by the Office Services Unit and an observer from the Commission is participating. It is planned to conduct such surveys on an annual basis.

Project furniture is moving rapidly this month, thus relieving the crowded condition of our warehouse.

Machine Repair	April	March
Office Machines Repaired in Shop Office Machine Service Calls	204 617	173 506
•	· <del></del>	
Total Machines Serviced	821	679
Furniture and Moves	,	
Office Moves	5	23
Pick-ups for Records Center	96	72
Store Orders Filled	489	287 680
Pieces of furniture delivered	852	000
Property Transfers Completed	46	17

#### Central Printing

The Manufacturing Department's yearbook was completed this month and was a very creditable printing job, considering the limited experience of our employees in performing work of such exacting standards. The Elfun Society Annual Report was also produced during the month. Volume of printing showed a slight increase over last month and revenue will exceed costs by a good percentage to reverse a trend and show more economical operation.

Work Completed	<u>April</u>	March
Orders received	364	304
Offset orders completed	293	268
Offset copies	1,201,420	1,197,992
Letter Press Completed	60	32
Letter Press Copies	51,033	25,824
Photo Copy Prepared	234	179
Negatives Processed	566	. 430
Zinc plates made	461	362
Orders on hand at end of month	56	45

#### Stenographic Services

An acoustical ceiling was provided in the rooms occupied by the Steno Pool to cut down the noise level of the machines.

Loan requests have been very heavy during the last month and the Pool is four employees under budgeted amount. After June 1, Employment anticipates no further difficulty in supplying employees.

Breakdown of Hours	<u>April</u>	March
Dictation and Transcription Machine Transcription Letters Rough Drafts Stencils, dittos, duplimats Miscellaneous Meeting Time Training Time Absentee Time Unassigned Time	.0 8.0 112.0 56.0 639.5 324.0 .0 234.0 8.0 32.0	.0 .0 247.5 29.5 334.0 533.0 .0 287.0 2.5 40.0
Total  Employees Loaned to other Departments	1413.5	1523.5
Total Hours Available	2635.0	2624.0

#### Area Mail & Duplicating Services

Offset type duplicating continues to show steady growth. Steps are being planned to call in and excess mimeograph and ditto machines at an accelerated rate. Negotiations are under way to consolidate space required in 101 Building Duplicating and Mail Section. Scale plans have been developed for moving the 703 Building Duplicating room into the new wing of the 703 Building.

Area Mail Statistics	April	March
Total Pieces of Mail Handled	211,766	173,134
Duplicating Statistics		
Offset Plates Offset Copies Xerox Plates Number of Stencils Number of Copies	8,821 592,815 2,419 2,110 95,875	6,954 437,180 5,443 1,300 142,486
Number of Ditto Masters Number of Ditto Copies	4,365 222,890	5,018 134,418

#### Records Control

Quantity of records received, processed and stored:

Community Real Estate and Services Department	25	Standard	Storage	Cartons
Employee & Public Relations Department	17	#	o f	. 11
Engineering Department	247	11	Ħ	Ħ
Financial Department	50	17	Ħ	17
General Administration Department	8	11	11	π
Manufacturing Department	46	1T	Ħ	11
Medical Department	25	11	Ħ	n

## Radiological Sciences Department Subcontractors:

9 Standard Storage Cartons

Atkinson and Jones Company
Utilities and General Services Dept.

480	11	11	ti
95	17	tr	11

#### TOTAL

1,002 Standard Storage Cartons

Number of persons provided records services: 850
Number of records cartons issued: 528
Number of cartons of records destroyed: 5

Percentage of the Records Service Center Vault occupied by records is 97.15 excluding Civilian Defense portion.

Twenty requests for file cabinets were received. Twenty-two requests were filled. Nine cabinets were exchanged. Four requests for file cabinets were cancelled.

Training for using the uniform filing system was given in six offices this month. Six other offices were visited for the purpose of checking files which were started prior to this month. Twenty offices established the uniform filing system and had it checked during the month.

Approval was received from the AEC on General Electric's recommendation that vital records be microfilmed. A formal request was made to the Contract Group to negotiate a contract on a unit cost basis for the performance of this work.

Evaluation of thirteen records for destruction was completed and approved by the Records Committee. Requests for disposal of seventy-six records are now ready to submit to the AEC for approval.

A meeting was held with the interested persons concerning the disposal of Vitro Corporation and Charles T. Main Inc. records in conjunction with the assignment of these sub-contracts to the AEC. Assistance was given to the Projects Section in the matter of disposal of General Electric records on functions taken over by the AEC.

#### Procedures Analysis

	March	<u>April</u>
Printing Orders received	347	334
Printing Orders rejected	14	19
New numbers assigned	55	77
Forms designed	50	54
Suggestions processed	3	14

The first phase of the Receiving and Stores Procedures Analysis has been completed, which comprises about 50% of the total project. A report to Management on the basic principles of Stores procedures has been prepared and will be pending Management's recommendations in regard to the report. It is estimated that the analysis will be completed in approximately thirteen weeks, or about August 1, 1952.

Considerable miscellaneous projects were scheduled during the past month. As a result in a change of responsibilities in handling classified mail, three new forms were designed and printed, resulting in an annual recurring savings of \$260.00. Maintenance work in the Richland Police organization resulted in a redesign of the "Jail Blotter" form. This form was reduced from 1h" x 20" to 11" x 17" and equipment was obtained to house the form. The resulting annual recurring savings amounted to \$50. The total savings of \$310 are included in this report.

The Secretary of the A & B Committee has requested assistance in revising the Project Proposal and Project Estimate forms. At the present time, part of these forms cannot be reproduced utilizing HW project facilities. The forms are being redesigned and printed on preprinted paper plates, of such size that they can be printed and duplicated on the plant site. Considerable savings can be realized from this survey and will be included in the report for May.

The Termination Clearance Analysis has been completed as far as actual survey work is involved. The Organization and Policy Guide 18.11, "Removal From Payroll" has been prepared in fifteen rough draft copies and distributed to departments for review and approval. This new policy guide will supercede Instructions Letter No. 129. A transmittal letter was also issued with the rough drafts, requesting that all rough drafts be returned to this office by May 5, 1952, so a composite draft can be presented to E. A. Smith, Organization and Policy. Savings from this survey are pending final acceptance of the Policy Guide, and will be included in the May report.

Savings Realized for April	One Time	Annual Recurring
Forms Control Analysis	\$661 	\$269 310
Total Savings for Previous Month:	<b>\$26,</b> 968	
Total Savings for April:	\$ 1,240	
Accumulated Savings from 1-1-52:	<b>\$</b> 76 <b>,</b> 188	

#### SECURITY AND PATROL UNIT

#### Document Report

Number of technical and scientific documents classified "confidential" or higher reported unaccounted for April 1, 1952:	403
Documents (technical and scientific) reported unaccounted for during April:	12
Documents (technical and scientific) reported found during April, 1952:	7
Number of technical and scientific documents unaccounted for April 30, 1952:	408
Number of non-technical documents classified "confidential" or higher reported unaccounted for April 1, 1952:	46
Documents (non-technical) reported unaccounted for during April, 1952:	21

Documents (non-technical) reported found during April, 1952:	22
Documents (non-technical) declassified during April, 1952:	12
Number of non-technical dominants inaccounted for April 30, 1952:	33
Total number of technical and scientific and non-technical documents	1017

The Non-Technical Document Review Board held two meetings during this period, but due to problems in the Technical Services Classified Files, the material reviewed by the board has not been processed by Files. However, the results of the work completed during the two meetings will be reported at a later date.

There were 14 security violations committed by General Electric Company personnel involving improper storage of classified material.

#### Security Education

There were 219 security meetings held and attended by 3,237 General Electric employees.

Two items on Security appeared in the Works NEWS during the month.

A representative of Security showed the following films at security meetings during the month:

"The Man on the Left" at twelve meetings with an average attendance of twenty-five employees at each meeting.

"Sabotage" at three meetings with an average attendance of twenty employees at each meeting.

"The Case of the Smokeless Chimney" at four meetings with an average attendance of twenty-five employees at each meeting.

The following "A-B-C" security pamphlets were distributed during the month:

500 copies on April 7 with the slogan "Spring Clean Files".

500 copies on April 30 with the slogan "Challenge all Visitors to Your Area".

There were 105 General Electric employees who received "Q" security orientation talks from either a representative of the Security Unit or an Area Patrol Captain during the month.

#### General

Statistical report of Security Patrol activities:

	100-B	100-D	100-F	<u> 100-H</u>	200-E	200 <b>-₩</b>	<u>300</u>
Pat Searches	90	90	90	57	116	138	15
Escorts	43	13	236	64	283	298	70
Ambulance Runs	5	1	4	- 6	2	1	4

	100-B	100-D	100-F	100-H	200 <b>-E</b>	200 <del>-W</del>	<u>300</u>
usses issued:							_
One day temporary	11	13	17	0	21	79	514
Travel	0	0	0	0	0	0	64
Red Tag	133	223	263	59	68	2,522	198
Tel ephonic	0	11	0	2	0	0	22
Supervisors' Post contacts	616	414	379	337	423	1,566	1,400

Arrest Report:

	No. of Violations	Cont. Cases from Mar. 152	Cases Cleared	Pending	Fined
Speeding No Operator's License	1	0	1	0	1
	2	1	2	1	2
Citation Tickets i Warning Tickets is Verbal Warnings:		1 11, 2			

Other Security Patrol activities:

Buildings and doors opened:	200
Railroad gates openeds	208
Master Keys issued:	172
Operation gas pumps	117

The following courses were received at the Patrol Training School by 304 Security Patrolmen during the month:

.30 caliber machine	gun	2		hours
.45 caliber machine	gun	1		hour
12 gauge riot gun	_	2		hours
Safety			1/2	hour
Security			1/2	hour
Security Film			1/2	hour
First Aid		1	1/2	hours

#### Security Patrol Post Changes:

On April 1, the post at the 234-5 Construction Badge House was discontinued and combined with the 234-5 Operations Badge House post. The perimeter fence was reinstated.

The 221-U Canyon Badge House was moved to the new badge house south of the 221-U Building. This badge house now controls the entrance of personnel to the 221-U Area. Post requirements are: one man twenty-four hours and one man extra as needed on the day shift.

Effective April 10, two new posts were established in the 105-C Building and will be known as "X" level and Visitor level or Observation Platform. These posts will be operated twenty-four hours daily.

The temporary post known as "Prepakt Test Lab" in 100-C Area was discontinued April 14.

As of April 17, due to the closing down of the 200-N Areas, the North Area Motor Patrol and the 212-R and P Area Badge House posts were discontinued.

On April 21, the post was established at the rear of the 105-C Unit on a twenty-four hour basis as a precautionary measure against sabotage during packing.

On April 25, the Observation Platform post, 105-C Area, was discontinued at the end of the No. 2 shift.

The 105-C Tube installation was completed on the Number 1 shift on April 30. At this time, the special Patrol post established at the rear of the pile was discontinued.

Security Field Inspection Activities:

Contacts made to locate unaccounted for documents:	23
Searches conducted to locate unaccounted for documents:	11
Documents located	41
Searches conducted for unaccounted for documents charged	
to terminating personnel:	13
File custodians advised to change combinations which were	overdue:31
Combinations changed:	9

Effective April 1, the Charles T. Main Company and Vitro Corporation of America contracts with the Nucleonics Division of the General Electric Company were transferred to the Atomic Energy Commission. With these transfers, all previous security responsibilities of the General Electric Company relative to these contracts were assumed by the Commission. It was determined that a physical inventory of classified documents relative to both these contracts would be made. The cut-off date of the inventory would be April 1, 1952.

A portion of the 115-B Construction Area, 100-B Area, was fenced off on April 2, at 11:45 A.M., which made it part of the 105 Exclusion Area.

A memorandum was issued by Security on April 4 to all operations personnel advising them that the 234-5 Construction Badge House closed as of April 1. Entrance to both the 234-5 Construction and 234-5 Operations Areas would now be via the 234-5 Operations Badge House. All security clearances were cancelled with the closing of the Construction Badge House.

Beginning Monday, April 7, at 7:00 A.M., the 221-U Area became classified as an exclusion area. Entrance to the building will be via the new badge house. Construction type badges will be utilized. The 222-U Building was fenced into the 224-U Exclusion Area simultaneously. A memorandum was issued by Security on April 4 advising of these changes.

Procedure Memorandum No. 43 was issued April 8, 1952, relative to the search for essential material. This procedure supersedes temporary instructions issued previously and establishes the method of search to be utilized at the exclusion and main area badge houses in the event that essential material is reported unaccounted for.

Effective April 9, the west end of the 234-5 Building, 200-West Area, including the RMA and RMB lines was placed on a Top Secret security classification level. Certain construction personnel were granted sufficient clearance to complete construction work in this section of the building which is scheduled to be finished May 15, 1952.

A revision of Organization and Policy Guide 15.27 entitled "Area Clearance" was issued April 14.

The exclusion area security classification was removed from the 200-N Areas on April 17. Clearance for these areas will now be controlled by the 200-E Area Separations supervision and the security clearances for these areas were cancelled on this same date. It is now a "controlled" area for health reasons.

The remodeling work of the 200-W Area Main Badge House was started April 17, with additional lines for entrance and exit of personnel to the area being installed as well as the new type badge racks.

Effective April 24, the 151-B Substation Building was placed in the 100-B "Limited" area. Formal "P" clearance will now be required for entrance to this building.

The final disposition for all prints relative to the RMA and RMB lines, 234-5 facility, was made April 28. It is arranged that one permanent copy of all drawings will be retained. Tracings etc. will be formally destroyed. However, some reclassifying will be necessary prior to final storage of this documentary material.

A supervisor from the Patrol Training School and a representative of the Atomic Energy Commission Security Division went to Portland, Oregon, on April 30 to complete production and recording of the new security film entitled "Only The River".

1. The control of the

# HANFORD WORKS General Electric Company Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING APRIL 30, 1952

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restric Class.	Restricted Data	Areas
MEDICAL DEPARTMENT							
I. Visitors to this Works			•				
S. T. Cantill Tumor Institute Swedish Hospital Seattle, Wassington	Medical consultation	W. D. Norwood, M.D. 4-18-52 4-19-52 P. A. Fuqua, M. D.	. 4-18-52	4-19-52	×		
II. Visits to other Installations	ons						
W. D. Norwood, M. D. to: U. S. Public Health Service Laboratory Cincinnati, Ohio	Attend symposium on fall out from Nevada tests	H. Wexler	4-24-52	4-25-52	×		
B. C. Scudder, M. D. to: U. S. Public Health Service Laboratory Cincinnati, Onio	Attend symposium on fall out from Nevada tests	H. Wexler	4-24-52	4-25-52	×		
DESIGN SECTION-ENGINEERING DEPARTMENT	KTMENT						
I. Visitors to this Works	<del>-</del>		÷				
A. A. Batza General Engancering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Roover	4-2-51	7-1-52	×	. 200-W 234-5	200-W 234, 235 234-5 Const.
W. C. Bellows General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	9-7-51	4-26-52	×	200-W 234-5	200-W 234, 235 234-5 Const.
	NAME OF THE PERSON OF THE PERS						

, 2							
				,	Restric		
Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Unclass	Areas
J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	1-14-52	7-1-52	×	200-V 234, 23	200-V 234, 235 234-5 Const.
F. J. Champlin, Jr. General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	1-14-52	7-1-52	H	200-V 2 234-5	200-W 234, 235 234-5 Const.
J. C. Coons General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	2-19-52	7-1-52	<b>H</b>	200-14 2 234-5	200-W 234, 235 234-5 Const.
J. R. P. Diehl NGeneral Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	11-5-51	7-1-52	<b>⋈</b> .	200-N 2 234-5	200-W 234, 235 234-5 Const.
C. W. George General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	2-12-52	7-1-52	Ħ	200-W 234, 234-5 Cons	00-W 234, 235 234-5 Const.
K. E. Gilbert General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	2-12-52	7-1-52	<b>H</b>	200-W 234, 2 234-5 Const	200-W 234, 235 234-5 Const.
K. J. Hatfield, Jr. General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	2-21-52	4-1-52	Ħ	200-W 2 234-5	200-W 234, 235 234-5 Const.
K. Long General Engineering Laboratory Schenectady, New Tork	Consultation and installation of equipment on 432 Project	D. A. Hoover	6-26-51	7-1-52	×	200-W 2 234-5	200-W 23 <b>4, 235</b> 234-5 Const.
J. L. Matrone General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	2-12-52	7-1-52	×	200-W 2 234-5	200-W 234, 235 234-5 Const.

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	Lame - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Class. Unclass Areas
92174	R. M. Poole General Ingineering Laboratory Schenectedy, For York	Consultation and installation of equipment on 432 Project	D. A. Hoover	10-1-51	7-1-52	. <b>₩</b>	200-W 234, 235 234-5 Const.
	C. F. Sherman General Inginearing Laboratory Schenectail, Ten York	Consultation and installation of equipment on 432 Project	D. A. Hoover	10-17-51	5-10-52	H	200-4 234, 235 234-5 Const.
	R. Gift.: General Intineering Laboratory Schenectoff; New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	10-1-51	7-1-52	<b>⋈</b>	200-W 234, 235 234-5 Const.
	R. W. Stanhouse General Engineering Laboratory e Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	1-14-52	7-1-52	<b>M</b>	200-W 234, 235 234-5 Const.
	TW. M. Wheeler General Insineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	D. A. Hoover	2-56-52	7-1-52	×	200-W 234, 235 234-5 Const.
	B. A. Lamberton Fregakt Company Seattle, Mashington	Consultation on concrete installation	L. Pihlfeldt V. D. Mixon	4-18-52	6-1-52	M	White Bluffs 105-C 100-C Const.
	A. J. Curtis Charles T. Main, Inc. Boşton, Massachusetts	Design criteria, water plant, water problems and studies	J. H. Snyder M. H. Russ	4-1-52	4-10-52	, <b>×</b>	700 100-D 105 100-F 105
	W. C. Distrow Charles T. Main, Inc. Restor, Massachusetts	Design criteria, water plant, water problems and studies	J. H. Snyder M. H. Russ	4-1-55	4-16-52	×	400
	E. R. Feldman Cherlos T. Main, Inc. Boston, Massachusetts	Design criteria, water plant, water problems and studies	J. H. Enyder M. H. Russ J. R. Wolcott	4-1-52	4-10-52	×	700 100-E XXX 100-F 105
	F. F. Eall Charles T ain, Inc. Boston, Massachusetts	-Design-criteria, water plant, water problems and studies	J. E. Snyder M. H. Fuss	4-10-52 4-1-52	4-10-52 4-16-52	<b>* #</b>	

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Name - Oranization	Turnose of Visit	Person Contacted	Arrivel	Februture	Class. Unclass	Uncluss	Areas	
E. G. Machay Charles F. Pata, Inc. Boston, Massachusetts	Design criteria, unter plant, water problems and studies	J. E. Snyder K. H. Russ	4-1-52	4-16-52	Ħ	700		•
R. K. Pattorson Charles F. Ligh, Inc. Boston, Franchinotts	Posign criterin, unter plant, weter problems and studies	J. E. Snyder II. E. Russ	4- <del>4</del> -72	4-10-52	ĸ	700		
C. C. Strumtt Charles 1. Nath. Inc. Doston, North Woodfr	Testin criteria, voter companies and studies	J. H. Snyder II. H. Russ J. H. Holoctt	4-1-52	4-16-52	×	700 100-E X	ä	
Shopenry T. Presilor. Tr. Shopenry T. Presil Ealtimore, Newsland	District criteria, unter plant, unter plant, unter riches and studies	T. H. Shelor	4-3-52	4-8-52	×	700 100-P 1 100-F 1	105 105	
48. G. Lorraine Janaratis Salar Minalon General Blockrie forman Schenockein, Ter I an	Pursue necessary re- J. ) someth in conjunction with economic feasibility study infer way in Apparatus group	J. I. Snyder utth study study	4-23-52	4-30-52	M	700		
H. W. Mantler Enchooids Parision Gonsmil Blectric Commissions Schenectally, in You't	Phrsus necessary re- J. J. secret in conjunction with economic feasibility study under why in Apparatus group	J. H. Snyder 1 with study 18 group	4-29-52	4-30-52	×	002		
P. J. Polak U. E. Itomic Jacryy Commission Wilminator, Bolanne	iscussion of česign bases for separations plants	C. A. Bohrmann W.B. Webster	4-9-52	4-9-52	H	001		
C. Tayes U. S. / tomic Therm' Countssion Wilmington, Beleimen	Discussion of design bases for separations plants	C. A. Rohrmann F. B. Webster	4-9-52	1-9-55	×	002		
J. Firth Comission U. 3. Atomic Fnerry Commission	Discussion of design bases for separations plants	C. A. Rohrmann W. B. Webster	4-9-52	4-9-5s	M	700		
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Tare - Creanization	Purpose of Visit	Person Contacted	Arrival	Le meture	Class.	1.7.1888	Areas
C. Thornton D. U. S. Aboute Energy Commission Neshington, B. C.	Discussion of design bases for separations plants	C. A. Rohrmann	4-16-52	4-13-52	×	003	
D. E. Meshing Energy Commission . Washington, D. C.	Discussion of design bases for separations plants	CA. Rohrmann	4-16-52	22.55	×	730	
H. Crindell Celiforming Research Corporation bases for Livermont Project San Transisco Area Office	Discussion of design bases for separations plants	J. B. Fecht C. A. Kohrmann W. B. Webster J. O. Ludlow R. E. Tomlinson	4-21-52	4-63-5 <b>2</b>	×	3.c dox	
California Assearch Corporation Clivermore Project San Francisco Area Office	Discussion of design bases for separations plants	J. B. Fecht C. A. Rohrmann W. B. Webster J. O. Ludlow R. E. Tomlinson	4-21-52	4-23-52	×	Redox 221-U	
A. C. Miller California Research Corporation bases for Livermore Project San Francisco Area Office	Discussion of design bases for separations plants	J. B. Fecht C. A. Rohrmann W. B. Webster J. O. Ludlow R. E. Tomlinson	4-21-52	4-23-52	×	Redo <b>x</b> 221-U	
L. Michaels California Research Corporation bases for Livermore Froject San Francisco Area Office	Discussion of design bases for separations plants ,	J. B. Fecht C. A. Rohrmann W. B. Webster J. O. Ludlow R. E. Tomlinson	4-21-52	k. 23-52	×	Reiox 221-U	
R. McCarter California Reserch Corporation Livermore Project San Francisco Area Office	Discussion of design bases for separations plants	J. B. Fecht C. A. Ruhrmann W. B. Webster J. O. Endlow R. E. Temlinson	4-21-55 **	13. (1) (1)	<b>*</b> *	<b>n</b> 33	



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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Uncluss Areas
R. Hughey U. S. Atomic Energy Commission San Francisco Area Office	Discussion of design bases for separations plants	J. B. Fecht C. A. Rohrmann W. B. Webster J. O. Ludlow R. E. Tomlinson	4-21-52	4-23-52	H	Redox 221-U
C.W. George General Engineering Laboratory Schenectady, New York	Discussion of assistance to Hanford Projects	W. P. Ingalls D. A. Hoover	4-8-52	4-11-52	×	300 303 200-W 234, 235 234-5 Const.
D. E. Nolte General Engineering Laboratory Schenectady, New York	Discussion of assistance on 432 Project	Assistance D. A. Hoover	4-7-52	5-1-52	Ħ	700 200-W 234, 235 234-5 Const.
e.B. M. Stoller Vitro Corporation New York, New York	Discuss Vitro Separations Plant Studies	W. B. Webster	3-31-52	4-4-52	Ħ	700
II. Visits to other Installations	suo	· · · · · · · · · · · · · · · · · · ·				
E. P. Peabody to: General Electric Company Seattle, Washington	Inspect GE plants and consult with engineers	H. M. Gustafson	4-21-52	4-21-52		×
C. L. Cobler to: Instrument Lab., Inc. Seattle, Washington	Inspection of saran-type chambers	B. L. Frost	4-8-52	4-8-52		×
B. E. Woodward to: Industrial Instrument Spokane, Washington Supply	Inspection of central thermocouple panel	R. E. Shanks	4-24-52	4-24-52		×
J. L. Weeks to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Obtain information and engineering details and cruicible information	R. D. Baker	4-27-52	4-29-52	Ħ	
H. S. Davis to: Puget Sound Navy Shipyard asses Bremerton, Washington	Observe and direct final A, Forsmark assembly of work on order HS-51	A, Forsmark HS-51	4-30-52	5-3-52	Ħ	

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Hame - Organization,	Purpose of Visit	Person Contacted	rrival	Pepar ture	Class.	กลาไลษย	F. 6-1 B	
	Design criteria,	R. K. Patterson	4-28-52	5-2-52	×	•		•
Boston, Massachusetts	cations for development of process pumps							. •
O L. E. Poster	Witness downcomer	Mr. Barker	4-29-52	4-29-52		×		
to: State College of Wash.		J. Robeson						
L. H. T. Foster	Initiate test on	R. W. Moulton	4-10-52	4-11-52		×		14.1
father University of Weshington Coattle, Washington	graphite							
	Initiate test on	R. W. Mculton	4-10-52	4-11-52		×		
copy, University of Washington	graphite.							٠. ـ
Seattle Washington Control			-		•			
N. T. Bellarts	Witness testing	Mr. Barker	4-22-52	4-22-52		×		
to; State College of Wash.								
	Witness testing	Wr. Barker	4-30-52	4-30-52		;: <b>×</b>		
to: State College of Wash.	Gritago gogiatu			<b>.</b>				
Hallman, ashington								
T. F. (Robinson	Witness testing	Mr. Barker	4-30-52	4-30-52		×		••
to:, State College of Wash. Pullmdn, Washington								
J. J. Griffith	Witness testing	Mr. Barker	4-28-52	5-2-52		×		
to: State College of Wash.								
Pullman, Washington								•
G. H. Strong Strong Company to; General Electric Company	<b>بر</b> بو	J. H. Barnwell	4-28-52	5.2-52	×			
Schenectady, New York	drawings prior to actual construction	_						
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PROJECT SECTION-ENCINEERING DEPARTMENT

I, Visitors to this Works

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Hame - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class. U		Areas
	Inspect two 150,000 gallen storage tanks	H. E. Hanthorn	4-17-52	4-18-52		X Redox	»)."
	lined with Tygon by his company which failed		•				
٠.	in service				•		•
G. Collins of the col	Check GE motor that	R.C. Hollingshead	4-10-52	4-10-52		x 221-U	b
General Electric Company							
The state of the s	Consultation on clean-	J.S. Parker	4-28-52	4-29-52	H	105-C	
General Engineering Laboratory Schenectady, New York							· · · · · · · · · · · · · · · · · · ·
P. G. W. Ogden. N. Baird Associates Cambridge, Massachusetts	Repair water vapor analyzer for C-410 Project	M. G. Patrick S. S. Jones L. F. Kendell	4-29-52	5-9-52		x 300	300 3706 Bldg
D. B. Roberts General Engineering Laboratory Schenectady, New York	Consultation on clean- ing procedures and inspection of procedures	J. S. Parker	4-28-52	4-29-52	H	105-c	:
M. B. Rosengren Stearns-Rogers Mfg. Co. Denver. Colorado	Consultation on performance of test pulse generators	ance R. C. Hollingshead s G. H. Wright 4-1	shead 4-16-52	4-17-52	<b>H</b> :	221-U	•
J. H. Wills General Machinery Company Spokane, Washington	Investigate excessive vibration in pumps installed in 211-U Area	R. C. Hollingshead 4-10-52	1 4-10-52	4-11-52		X 221-U	Þ
: : : : : : :	Inaison on sub contract G-363	J. W. Conley	4-1-52	4-10-52	H	100-C Area	Iroa
W. C. Disbrow Charles T. Main, Inc. Boston, Massachusetts	Liaison on sub contract G-363		4-1-52	4-10-52	Ħ	100-C Area	401
Charles Main, Inc. Boston, Assachusetts	Liaison on sub contract G-363	J. W. Conley	4-1-52	4-10-52	H	100-C Area	lret.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Unclass	Areas
Charles T. Main, Inc. Cobston, Massachusetts	Liaison on sub contract G-363	J. W. Conley	4-1-52	4-29-52	×	100-C Area	rea
E. G.MacKay Charles T.Main, Inc. Boston, Massachusetts	Liaison on sub contract G-363	J. W. Conley	4-1-52	4-9-52	×	100-C Area	<b>a</b>
R. K. Patterson Charles T. Main, Inc. Boston, Massachusetts	Limison on sub contract G-363	J. W. Conley	4-5-52	4-10-52	×	100-C Area	rea
C. C. Starratt Charles T. Main, Inc. Boston, Massachusetts	Liaison on sub contract G-363	J. W. Conley	4-5-52	4-10-52	×	100-C Area	rea
NG. Conklin Dix Steel Building Company Spokane, Washington	Liaison on sub contract G-416	J. R. Kelly O. W. Priebe	4-1-52	4-1-52		х 300	3000 Area
J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Installation of equipmen on 432 Project	of equipment D. A. Hoover t	4-7-52	4-11-52	×	200-W <b>234, 2</b> 234-5 Const	134, 235 Const
C. W. George General Engineering Laboratory Schenectady, New York	Installation of equipment D. A. on 432 Project	t D. A. Hoover	4-7-52	4-11-52	×	200-W 234, 234-5 Cone	00-W 234, 235 234-5 Const.
D. E. Nolte General Engineering Laboratory Schenectady, New York	Installation of equipment D. A. Hoover on 432 Project	nt D. A. Hoover	4-14-52	4-17-52	×	200-W 2 234-5	200-W 234, 235 234-5 Const.
II. Visits to other Installations	lons						•
P. J. O'Neil to: General Engineering Lab. Schenectady, New York	313 mechanization	C. W. George	4-15-52	4-18-52	×		
J. S. Parker	Consultation on equip-	D. R. Shoults	4-1-55	4-4-55	×		

J. S. Parker to: General Electric Company Lockland, Ohio

Consultation on equip-mentation on equip-

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure
Consultatives: S. Parker  to: Vitro Corporation of America contract  New York, New York	Consultation on sub- ica contract	A. L. Baker	4-4-52	4-7-52
RADIOLOGICAL SCIENCES DEPARTMENT T V444+**** + + + + + + Works	IXI			
it	Investigate special instrumentation application problems	J. M. Holeman H. A. Kornberg	4-29-52 5-1-52	4-29-52 5-1-52
M. E. Ensminger State College of Washington Pullman, Washington	Discuss progress of Experimental Animal Farm	L. K. Bustad	4-23-52	4-23-52
F. A. Devlin U. S. Maval Radiological Lab. San Francisco, California	Information on radio- A logical protective P equipment and methods W for removal of radioactive material	A. R. Koene P. C. Jerman W. A. McAdams tive	4-1-52	4-4-52
J. E. Lav - U. S. Naval Radiological Lab. San Francisco, California	Information on radio- 'A logical protective P equipment and methods W for removal of radioactive material	A.R. Keene P. C. Jorman W. A. McAdams tive	4-1-52	4-4-52
	Information on health physics aspects of reactors	J. M. Smith	4-22-52	4-25-52
H. N. Parkerto: Swedish Hospital Seattle, Washington	Health physics consultation	S. T. Cartril	4-3-52	4-4-52

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100-H 105 200-W 221-T Redox 300 XXX

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	Purpose of Visit Pere	Person Contacted	Arrival	Departure	Class.	Unc lass	Areas
Name - Organizacion			•	i i	٢		
R.H. Scott  to: U. S. Public Health Service Lab. from Nevada Cincinnati, Ohio	out H. tests	Wexler	4-24-52	4-25-4	4		
CO MANAGEMENT					. •		
I. Visitors to this Works					;	, ,	
W. R. Herod International General Electric Co. problems New York, New York	nternational G.	R. Prout	4-21-52	4-25-52	×	100-C 100-D 10 100-H 10 Redox 300 303	105, D & 3 105
G. H. W. Huntley Nucleonics Division N. General Electric Company	Pursue necessary research in conjunction with Economic Feasibility Study	E. Johnson	4-28-52	5-2-52	×		
Schenectady, New York					;		
R. G. Lorraine Apparatus Sales Division General Electric Company Schenectady, New York	Pursue necessary research in conjunction with Economic Feasibility Study	E. Johnson	4-28-52	5-2-52	×		
II. Visits to other Installations	tons				a "		
D.W. McLenegan to: Argonne National Laboratorymeeting of AEC thicago, Illinois Engineering Ed	Attend joint committee J. rymeeting of AEC representatives and Am. Society for Engineering Education	C. Boyce	4-18-52	4-19-52	×	·	
W. P. McCue to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Arrange for data for R.	J. Davis	4-7-52	4-7-52	×		
W. P. McCue to: Sandia Corporation	Arrange for data for F. salary survey	P. Fay	4-8-52	4-8-52	×	•	
W. P. McCue to: Argonne National Lab. Chicago, Illinois	Arrange for data for a large and salary survey	P. A. Parker	4-9-52	4-9-52	×		. *

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Unclass	Areas
W. P. McCue to: Carbide & Carbon Oak Ridge, Tennessee	Arrange for data for salary survey	T. E. Lane W. E. Williams	4-11-52	4-11-52	H		
W. P. McCue to: Brookhaven National Lab. Upton, Long Island, New York	Arrange for data for salary survey	L.R. Swart R. Patterson	4-14-52	4-16-52	<b>H</b>		
MANUFACTURING DEPARTMENT					•		
I. Visitors to this Works							
J. H. Law, Jr. U. S. Naval Radiological Defense San Francisco, California Lab.	Observation of tests ense Lab.	J. G. Myers	4-2-52	4-2-52		X-100-B 105-B	105-B
F. A. Devlin	Observation of tests	J. G. Myers	4-2-52	4-2-52		X-100-B 105-B	105-в
San Francisco, California Le	Lab.		1 .				1
M. R. Hyers International Bus. Machines	Repair IBM machines	L. T. Hagie	4-11-52	4-11-52		х-100-н 105-н	105-H
Richland, Washington		E H	h-98-52	4-28-52		X-100-H 105-H	105-H
C. G. Kruse International Bus. Machines	Repeir in machines					ı	
Richland, Washington	Deliver chemicals	V. R. Chapman	4-10-52	5-15-52		X-Redox	·
General Chemical Division Allied Chemical & Dye Corp. Kennewick, Washington	· SAT						
II. Visits to other Installations	tions						
A. Bradway, Jr. inspection to: Los Alamos Scientific Lab. equipment	Inspection of process.b. equipment	R. D. Baker	4-28-52	4-28-52 4-29-52	×		
Los Alamos, New Mexico							

- 13 -						Restrict Data
Tame - Organ	- Organization	Purpose of Visit	Person Contect	Errival	D. T.	Class hes
- W. A. Blanton - D. to: General Engineer C Schenectady, New York	H. A. Blanton to: General Engineering Lab. Schenectady, New York	Consult on proposed Casalida Casa Suilding rechanization	C. V. George	4-15-52	4-17-E	×
J. H. Hoage to: State College Pullman, Washington	College of Meshingto shington	J. H. Hoage to: State College of Washington test on compartment type Pullman, Washington downcomer test model	w Dr. Albrook ype	it-22-52	t-22-(2	<b>&gt;</b> 4
TELEPHONE &	ELECTRICA! DISTRIBU	TELEPHONE & ELECTRICAL DISTRIBUTION SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT	ND GENERAL SERVICES	Department		
I. Visitor	Visitors to this Works					
M. Sargent Vestern Engineering Spokane, Washington	ineering shington	Make special radio teston transmitter and antegrations equipment	tests G. R. McKinney antenna	4-17-52	4-18-52	X Gable Mountair
F STATISTICAL	, AND COMPUTING SERVI	B STATISTICAL AND COMPUTING SERVICES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT S	ND GENERAL SERVICES 1	)EPARTMENT		
I. Visitor	I. Visitors to this Works					
M. E. Norby International Bus. M Richland, Washington	M. E. Norby International Bus. Machines Richland, Washington	Repair IBM equipment	B. F. Butler P. M. Thompson	4-21-52	5-1-52	Y 700 Area
II. Visits	Visits to other Installations	ions				
W. C. Healy, Jr. to: Argonne Natichicage, Illinois	W. C. Healy, Jr. to: Argonne National Lab. Chicago, Illinois	Attend meeting on Project Blue Nose	Committee	4-10-52	4-11-52	×

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4-30-52

Prepare film and record M. Pipes for new security film

VIATT SECURITY AND SERVICES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT

T. Wisits to other Installations

to: Endio Film Producers Preferad, Oregon

R. C. Burrus

					Restrict	ted Data	
Name - Organization	Purpose of Wisit Perso	Person Contacted	Arrival	Departure	Class	Class Unclass	Areas
PURCHASING & STORES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT	ILITIES AND GENERAL SERVICES DEP	ARTMENT					
Col. Visitors to this Works			4-4-52	4-4-52		×	
E. Kropf Grinnel Company Seattle, Washington	Inspection after in- G. Hastallation of sprinkler	G. Hayward	4-7-52	4-30-52			277-8 and 277-U Bldgs.
J. Warren Spencer Turbine Company Hartford, Connecticut	Inspection of installa- A. Anderson tion of centrifugal exhauster- order EWC 10617 AJ	ıdərson	4-11-52	4-12-52		×	221-U
E.M. Holmes Welders Supply Company Portland, Oregon	Instruct personnel in W. Meyers use of Hobart equipment order HWC 20251	syers	4-14-52	4-16-52		×	White Bluffs
h D. L. Robertson Aper Steel Corporation, Ltd. Los Angeles, California	Inspect defective material C. and future reactors J.	W. Rushmore R. Kelly	4-15-52	4-15-52		××	White Bluffs 105-C
M. Van Horn Byron Jackson Company Portland, Oragon	Supervise installation G. He of pump assemblies	G. Hayward	4-21-58	4-25-52		×	100-c 190-c
J. B. Incien American Blower Corporation Detroit, Michigan	assemblies	G. Hayward	4-22-52	4-25-52		×	100-c 190-c
J. H. Killis Link Belt Company Beattle, Meshington	lation G. handling	Hayward	4-28-52	5-26-52		Ħ	100-c 183-c
F. Kropf Grinnel Company Seattle, Washington	Inspection after in- G. He stallation of sprinkler system	G. Hayward	4-30-52	5-15-52		×	277-s and 277-V Bldg.
eight on	shipment D. panel boards	А. Кпарр	1-28-52	4-28-52	• •	×	White Bluffs
	of electrical panel boards						

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- 15 -					Restricted Data	ted Da	ta.
Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Unclass	SS Areas
Lynwood, California	Supervise installation of gear increasers on orders DC 61231 and HWC 18816	G. J. Hayward	4-21-52	5-5-52		×	100-C 190-C
o M. Brill	Deliver material on	H. L. Morgan	4-2-52	4-2-52		×	100-н 190-н
Lee & Estes Kennewick, Washington	order Deliver material on	H. L. Morgan	4-4-52	4-4-52		×	100-в 190-в
•	order Deliver material on	H. L. Morgan	4-10-52	4-10-52		×	100-F 105 100-D 105
	order Deliver material on order 83039-M	H. L. Morgan	4-18-52	4-18-52		×	100-F 105
J. Allen P. Lee & Estes N. Kennewick, Washington	Deliver material on order	H. L. Morgan	4-2-52	4-2-52		×	100-и 190-и
	Deliver material on	H. L. Morgan	4-4-52	4-4-52		×	100-D 105
Lee & Estes Kennewick, Washington	order 83039 Deliver material on order	H. L. Morgan	4-22-52	4-22-52		×	
H. Riggs Lee & Estes Kennewick, Washington	Deliver material on order	H. L. Morgan	4-7-52	4-7-52		×	100-B 105
E. Colbert	Deliver material on	H. L. Morgan	4-7-52	4-7-52		×	100-н 190-н
United Truck Lines Kennewick, Washington	order 96573-M Deliver material on	H. L. Morgan	4-22-52	4-22-52		X	300 303-1
	order AEC 58934 Deliver material on order 90853-M	H. L. Morgan	4-25-52	4-25-52		×	100-D 105 100-F 105
G. Hixon	Deliver material on	H. L. Morgan	4-8-52	4-8-52		×	300 303-1
Inland Motor Freight Kennewick, Washington	order 87743-M Deliver material on order 87743-M	H. L. Morgan	4-24-52	4-24-52		×	300 303-1
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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class, Unclass	Arone
8	Deliver material on	H. L. Morgan	4-15-52	4-15-52	<b>™</b>	I 200-V 271-T
Kennewick, Washington C. Freauff Loe & Estos	Deliver material on order 83939-M	H. L. Morgan	i. 4-18-52	4-18-52	M 1	X 100-F 105
H. Halverson United Truck Lines Kennewick, Washington	Deliver material on order 90853-M	H. L. Morgan	4-30-52	4-30-52	<b>H</b>	100-B 105 100-F 105
II. Visits to other Installations	tons					
f. C. P. Lawson to Square D Company Seattle, Washington	Expedite material op order	Kr. Michel	4-30-52	4-30-52	<b>H</b>	
C. P. Lawson tor General Electric Company	Expedite material on order	Mr. Jensett	4-30-52	4-30-52	<b>H</b>	
Seattle, Washington  CO.P. Lawson  to: Puget Sound Sheet Metal Wks. order Seattle Washington	Expedite meterial on lks. order	Mr. Dexter	5-1-52	5-1-52	×	·
C. P. Fleming Expedit-	Expedite material on orp. order	Messrs. Leslie Steadman	4-13-52	4-17-52	×	
Jose, Calliornia  C. LAndersen  toi Stearns-Roger Mfg. Co. Denver, Colorado	Assist in close out and M. final audit of two maximum price connector orders	1 M. S. Rosengren Laum	3-31-52	4-2-52		
C. L. Andersen to: General From Works Denver, Colorado	Assist in close out and A final audit of two maximum price connector orders	d A. Smith imum	h-2-52	4-2-52	<b>`H</b>	



	- 17 -					Restricted Data	ed Data	
	Name - Organization	Par ose of Visit	Person Contacted	Arrival	Departure	Class.	Unclass Areas	
	BCHHICAL SECTION ENGINEERING DEPARTMENT	BPARTMENT						
	L Visitors to this Works					•		
	co cb E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Consultation on pre- liminary work on C Basin viewing facility design	J. J. Cadvell R. M. Fryar R. L. Reynolds	4-28-52	5-2-52	×	100-B 1703 100-D 105-D 105-C 300-303	
	W. W. Corbin Dow Chemical Company	Discussions on putse column design, operation and instrumentation	R. B. Richards n	4-14-52	4-16-52	×	700;300-XXX 200-W Const.271-U 221-U; Redox 200-W 234	
Ja-?1	H. A. Crapser Austin Company Cleveland, Ohio	Discussions on pulse column design, operation and instrumentation	R. B. Richards n	4-14-52	4-16-52	×	700; 300-XXX 200-W Const.271-U 221-U; Redox 200-W 234	
	A. J. Curtis Charles T. Main, Inc. Boston, Masssachusetts	Observe HW experimental Work in 189-D	M. Levis	4-4-52	4-4-52	×	100-D 189-D	
	R. M. Edwards General Engineering Laboratory Schenectady, New York	Consultation on pre- liminary work on C Basin viewing facility design	J. J. Cadwell R. M. Fryar R. L. Reynolds	4-28-52	5-2-52	₩	100-B 1703 100-D 105-D 105-C 300 303	
	H. R. Felôman Charles T. Main, Inc. Boston, Massachusetts	Observe HW experimental work an 189-D	M. Levis	4-4-52	4-16-52	×	100-D 189-D	
	C. W. George General Engineering Laboratory Schenectady, New York	Discussion on develop- ment projects to be handled by GEL	G. E. McCullough	4-11-52	4-12-52	×	300 3706, 3703	
	H. H. Hausner Sylvania Products Company proble Pittsburgh, Pennsylvania	sion of productions	m WL. Schalliol E. A. Eschbach	4-15-52	4-16-52	×	700; 300-303	:

Restricted Data   Areas   Class. Unclass   Areas   Class. Unclass   Areas   200-W Const.271-U   221-U; Redox   200-W 234   X   100-E 105   100-E 105	H H H H H H	Departure  4-16-52  4-4-52  4-23-52  4-9-52  4-15-52	Arrival  4-14-52  4-4-52  4-22-52  4-22-52  4-22-52	Person Contacted R. B. Bichards J. F. Gifford H. L. Henry In Redox A. H. Bushey J. F. Gifford H. L. Henry F. Gifford R. B. Richards F. B. Richards R. B. Richards	Purpose of Visit  Discussions on pulse  Column design, operation and instrumentation  Observe HW experimental M. Levis  Work in 189-D  Discussion of in-pile  Experiments  Discussion of sub-con- A. H. Busi tract and analytical methods  Consultation of in-pile  Separations problems  Discussion of in-pile  J. F. Giff  Busi tract and analytical methods  Consultation of in-pile  J. F. Giff  Biscussion of in-pile  J. F. Giff  Biscussion of in-pile  Them  Inspect pulse generators in Redox  Research and develop-  Research and develop-	Mame - Organisation  B. L. Kelchner  Dow Chemical Company  C. Dow Chemical Company  Baltimore, Maryland  W. K. McCarty  North American Aviation Co.  Downey, California  C. M. Slansky  American Cyanamide Company  Arco, Idaho  G.M. Steele  North American Aviation Co.  Downey, California  G.W. Steele  North American Aviation Co.  Downey, California  G. W. Watt  University of Feres  Austin, Texas
100-B 105, 108						
	×	4-15-52	4-9-52	R. B. Richards	Research and develop- ment consultations	<ol> <li>Watt</li> <li>rersity of Teras</li> <li>tin, Teras</li> </ol>
300-xxx; 700 100-H 105 100-F 105 100-D 105-D & DR 222-S-Redox	H	4-24-52	4-22-52	J. F. Gifford H. L. Henry f in Redox	Discussion of in-pile experiments Inspect pulse generators	Steele h American Aviation Co. ey, California
300-XXX; 700 Redox	<b>H</b>	4-9-52	4-7-52	R. B. Richards		Blansky ican Cyangaide Company Idaho
300 XXX 200-W 221-T Redox	Ħ	4-23-52	4-22-52	A. H. Bushey	Discussion of sub-contract and analytical methods	Scott College Oregon
222-S-Redox				in Redox	Inspect pulse generators	
300-XXX; 700 100-H 105 100-F 105 100-D 105-D & DR	H	4-24-52	4-22-52	′ai ⊢ì		McCarty American Aviation Co. y, California
100-D 189-D	×	4-4-52	4-4-52	M. Levis		Knoedler ard T. Powell Company more, Maryland
700; 300 XXX 200-W Const.271-U 221-U; Redox 200-W 234	H	4-16-52	4-14-52	R. B. Richards	tion	Kelchner hemical Company
	Restric	1	Arrival	Person Contacted		1 1



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- 19 -					Restric	
Name - Organization	Furpose of Visit	Person Contacted	Arrival	De parture	Class.	Unclass Areas
DR. E. Wirts Coneral Engineering Laboratory Schenectady, New York	Interview for employment	P.E. Collins	4-17-52	4-17-52	×	300 XXX
Colon Codtner Dow Chemical Company	Discusations on pulse column design, operation and instrumentation	R. B. Richards	4-15-52	4-16-52	×	700; 300 XXX 200-W Const.271-U 221-U; Redox 200-W 234
<ul><li>G. W. Ogden</li><li>Baird Associates</li><li>Cambridge, Massachusetts</li></ul>	Adjust and calibrate Baird water analyzer	A. H. Bushey	4-29-52	4-30-52	×	300 3706
II. Visits to other Installations	on <b>s</b>					•
R. J. Anicetti الله نام Norton Company Worcester, Massachusetts	Consultation on ceramic manufacturing	D. E. Webster C. H. Gustafson	5-1-52	5-2-52	×	
R. W. Benoliel to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical consultation on 234-5 technology and nuclear safety considerations	H. C. Paxton M. F. Roy 1- R. D. Baker	4-7-52	4-9-52	×	
R. W. Benoliel Pajarito Site Los Alamos, New Mexico	Technical consultation on 234-5 technology and nuclear safety considerations	H. C. Paxton	4-7-52	4-11-52	×	
A. G. Blasewitz to: ALos Alamos Scientífic Lab. Los Alamos, New Mexico	Discuss slag and dissolution equip	crucible R. D. Baker ment	4-28-52	4-29-52	×	
A. G. Blasewitz to: Oak Ridge National Lab . Oak Ridge, Tennessee	Plutonium recovery from metal waste	F. L. Steahly	5-1-52	5-2-52	×	
V. R. Cooper to: Radiation Laboratory Berkeley, California	Discuss supply of heavy	S. G. Thompson	4-3-52	4-4-52	×	•

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03.					Restrict	Restricted Data	
Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	C1488.	- 1	Areas
V. R. Cooper tot Los Alemos Scientific Lab.  Los Alemos, New Mexico	Technical discussion on 234-5 technology and nuclear safety	H. C. Paxton M. F. Roy R. D. Baker	4-7-52	4-9-52	Ħ		
V. R. Cooper O to: Rockly Flats Plant Dow Chemical Company	Metal purification and fabrication	B. Weidenbaum I. B. Venable	4-9-52	4-9-52	×		
V. R. Cooper to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical discussions on 234-5 technology and nuclear safety considerations	H. C. Paxton	4-7-52	4-11-52	H		
D. E. Davenport c. to: Morth American Aviation p. Davney, California	Discuss water moderator reactor	A. T. Biehl	4-10-52	4-14-52	×		
E. L. Dillon tor Argonne National Lab. Chicago, Illinois	Conference on solvent extraction	W. N. Manning	4-2-52	4-3-52	<b>H</b> ,		
E. A. Eschbach to: Ames Laboratory Battelle Memorial Institute Columbus, Ohio	Consultation on new canning problems	F. A. Spedding H. A. Wilhelm H. R. Nelson	4-28-52	4-29-52	H		
E. A. Eschbach tow Knolls Atomic Power Lab. Schenectady, New York	Consultation on new canning problems	A. U. Seybolt	4-30-52	4-30-52	×		
E., A. Eschbach to: Mass. Institute of Tech. Cambridge, Massachusetts	Consultation on new canning problems	A. R. Kaufmann	5-1-52	5-1-52	×		
E. A. Eschbach to: Sylvania Electric Products canning problems Pittsburgh, Pennsylvania	tation on new ig problems	H. H. Hausner J. L. Zambrov	5-2-52	5-2-52	×		

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!					Restricted Data	ed Data	
Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class.	Unclass	Areas
Downey, California	Discuss water moderator reactor	A. T. Biehl	4-10-52	4-14-52	×	,	
NR. B. Hamilton to: Argonne National Lab. Chicago, Illinois	Discuss Project Blue Nose	W. M. Manning	4-10-52	4-11-52	×		
F.E. Kruesi to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on work being done between HW and KAPL	K. H. Kingdon	4-14-52	4-15-52	×		
E. F. Kurtz to: Los Alamos Scientífic Lab. & Los Alamos, New Mexico	Discuss slag and crucible dissolution equipment	e A. G. Allison	4-28-52	5-31-52	×		
U.E. F. Kurtz to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss slag and crucible dissolution equipment in DP-West	e R. D. Baker	4-28-52	5-31-52	×		
W. J. Ozeroff to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical discussion on 234-5 technology and nuclear safety	H. C. Paxton M. F. Roy R. D. Baker	4-7-52	4-9-52	×		
W. J. Ozeroff to: Pajarito Site Los Alamos, New Mexico	Discuss of critical mass problems	C. Mark	4-7-52	4-9-52	×		
A. M. Platt to: Knolls Atomic Power Lab. Schenectady, New York	Purex consultation	J. Marsden J. F. Flagg	4-28-52	4-29-52	×		
A. M. Platt to: Oak Ridge National Lab. Oak Ridge, Tennessee	Purex consultation at X-10	F. L. Steahly W. K. Eister	4-30-52	5-2-52	×		
G. W. Pomeroy to: Knolls Atomic Power Lab. Schenectady, New York	Employment interview	I.H. Dearnley	4-12-52	4-17-52	×		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class. Unclass	Areas
G. W. Pomeroy Lo: Oak Ridge National Lab.	Employment interview	R, C. Mark	4-12-52	4-17-52	<b>.</b> ₩	
E. B. Quinlan to: Argonne National Lab. Chicago, Illinois	Meeting on non destructive testing	S, McClaine	4-1-52	4-2-52	₩ .	
M. J. Sanderson to: U. S. Atomic Energy Comm. Washington, D. C.	Attend AEC X-ray diffrac- D. tion conference	- D. W. Lillie	4-15-52	4-15-52	M	
M. J. Sanderson to: Argonne National Lab. Chicago, Illinois	Discussion of X-ray diffraction work	F. G. Foote	4-17-52	4-17-52	×	
P. R. Bchmidt Oto: Argonne National Lab. Chicago, Illinois	Discuss analytical experiments	W. M. Manning	4-9-52	4-10-52	M	·
E. A. Smith to: Kholls Atomic Power Lab. Schenectady, New York	Discuss canning problems C.	C. E. Lacy	4-17-52	4-17-52	M	
E. A. Smith to: General Engineering Lab. Schenectady, New York	Inspect progress of canning mechanization	C. W. George	4-15-52	4-16-52	<b>H</b>	
E. K. Smith to: Argonne National Lab. Chicago, Illinois	Discuss canning problems L.	I. R. Kelman	4-18-52	4-18-52	Ħ	
R. E. Tomlinson to: Knolls Atomic Power Lab. Schenectady, New York	Purez consultations	J. Marsden J. F. Flagg	4-28-52	4-29-52	M	-
R. E. Tomlinson Purex coton Cor Cor Ridge National Lab. at X-10 Oak Ridge, Tennessee Cor	Purex consultation at X-10	F. L. Steahly W. K. Eister	4-30-52	5-2-52	×	

- 22 -					Restricted Data	n Data	
Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class. U	Unclass	Areas
A. S. Wilson  to: Argonne National Lab.  Chicago, Illinois	Conferences on solvent extraction	W. N. Manning	4-2-52	4-3-52	M		
E. C. Wood to: Argune National Lab. Chicago, Illinois	Meeting on non destruc- tive testing	S. McClaine	4-1-52	4-2-52	×		
J. B. Work to: Oak Ridge National Lab. Oak Ridge, Tennessee	Waste process meeting and technical consultati at X-10	meeting F. L. Steahly consultation W. K. Eister	4-7-52	4-9-52	×		
J. B. Work to: Oak Ridge National Lab	Hanford VO <sub>3</sub> K-25	F. Hurd	4-9-52	4-10-52	×		
d D. C. Worlton to: Argonne National Lab. Chicago, Illinois	Meeting on non destructive testing	S. McClaine	4-1-52	4-2-52	×		
P. F. X. Dunigan to: S. Blickman Co., Inc. Weehawken, New Jersey	Review design and fabrication techniques in manufacture of hoods	- T.B. Lanahan B. Blickman	4-7-52	4-8-52		×	
C. G. Stevenson to: Was. State Library Comm. Seattle, Washington	Attend meeting	P. A. Wanamaker	4-24-52	4-24-52		×	
I. D. Thomas to: N. A. Phillips Corp. Mount Vernon, New York	Attend diffraction conference	; ;	4-21-52	4-25-52		×	
R. E. Kupel to: General Electric Company Lockland, Ohio	Personnel interview	R. C. Mark	4-8-52	4-8-52		×	
R. E. Kupel Personnel into to: Aircraft Nuclear Propulsion Project Oak Ridge, Tennessee	Personnel interview on Project	A. Folk	4-9-52	4-9-52		×	

# PURCHASING AND STORES SECTION UTILITIES AND GENERAL SERVICES DEPARTMENT SUMMARY - APRIL 1952

Personnel of the Purchasing and Stores Section showed a net decrease of 7 as noted below:

#### TOTAL PERSONNEL

	3-31-52	4-30-52	Net Change
Exempt	92	90	-2
Non-Exempt	316	311	<u>-5</u>
	408	401	<b>-7</b>

A visit by our Washington, D.C. representative to vendors concerned resulted in satisfactory delivery promise on rack drives for Building 105-C.

Ceiling Price Regulation, CPR 134, governing ceiling prices of food, meals, and beverages was received. Kadlec Hospital Cafeteria has been subject to CPR 11; however CPR 134 exempts hospital cafeteria meals from both CPR 11 and CPR 134.

A recommended settlement of the Southwest Welding and Manufacturing Company's claim was submitted to AEC. The recommendation amounted to approximately 50% of the vendor's claim of \$152.439.45.

As a result of cast iron shielding blocks purchased from Apex Steel Corp., not meeting field requirements, four emergency orders were placed to have the blocks machined to the correct size. Apex Steel Corp. has been contacted regarding responsibility for the incorrectly sized blocks.

The Purchasing Agent, Construction Procurement Unit, was appointed chairman of a committee consisting of representatives from AEC, Design Section and Projects Section of the Engineering Department and Purchasing and Stores Section. This committed prepared lists of material which it recommended that General Electric should purchase on future construction projects.

Bulk carbon dioxide tanks will be ready for use in August. This should allow substantial savings in cylinder handling.

Two scrap sales of material in vendors' plants were completed. 15,400 pounds of scrap stainless steel were sold for \$825.00.

Production of vertical winches has been very slow and this item appears to be the most serious limiting item for Building 105-C. In order to exercise better control of sub-vendor production, a second inspector was assigned to this job.

Effective May 2, 1952 railroad freight rates will be increased 6% in the Eastern Territory and 9% in the Western Territory with coal rates increased 20¢ per ton. Water carriers and freight forwarders were granted similar permissions.

As a result of rate reductions obtained from carriers, there was a savings in freight charges for the month of April amounting to \$4,158.11. This makes a total savings from September 1, 1946 to date of \$1,707,671.56.

## PURCHASING AND STORES SECTION GENERAL

Erection Engineers were brought in from nine companies to supervise installation of equipment in 100-C area.

Satisfactory improvement in the delivery promises for rack drives for the 105-C Building was obtained, as a result of a trip by our Washington, D. C. Representative to Watson Flagg Company and General Electric Company Plants in Philadelphia and Schenectady.

Discussions with a representative from the Regional Office of the Department of Commerce at Seattle reflected the fact that our operations within the scope of the Priorities System are very satisfactory.

A new Ceiling Price Regulation, CPR 134, governing the ceiling price of food, meals, and beverages, has been issued. Kadlec Hospital Cafeteria has been subject to price control under CPR 11; however, consultation with Legal Department and District Office of Price Stabilization confirmed our interpretation of the new CPR 134 that hospital cafeteria meals are now exempt from both CPR 134 and CPR 11.

Three requests for NPA Directive or DX action were received.

Three cases were submitted to the Atomic Energy Commission for directive or DX action by Priorities.

Special forecast on requirements of thiakol was prepared and transmitted to the Commission.

Two new monthly reports to National Production Authority on sulfuric acid inventory and use were issued for the first time this month.

The "Stores Manual of Standard Practices" has been printed.

#### PERSONNEL

	As	of 3-31-	-52	A	s of 4-30	) <del>-</del> 52		Net Chang	e
•	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Exe	Non-Ex.	Total
Staff	2	1	3	2	1	3	0	0	0
General	2	3	5	2	3	5	0	. 0	0
Priorities	7	7	14	6	7	13	-1	0	-1
Inventory	2	12	14	2	12	14	0	. 0	0
Clerical	2	33	35	2	33	35	0	O	0
•	15	56	71	14	56	70	-1	0	-1

#### SAFETY AND SECURITY

Safety and Security Meetings Scheduled Number of Employees Attending

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## PURCHASING AND STORES SECTION GENERAL

#### STATISTICS

The following schedule reflects total allotments received from the Atomic Energy Commission and allotments used and extended to suppliers and contractors through April. Top figures under each item number indicate allotment received from the Atomic Energy Commission. Lower figures under each item number relect material allotment used or allotted for the quarter indicated.

#### **CPERATIONS**

Controlled Material	Unit Measure	2 0 52	3 Q 52	4 Q 52
Carbon Steel (including	Short	109.00	120.00	150.00
Wrought Iron)	Tons	67.17	6,30	. 0
Alloy Steel (excluding	Short	3.00	4.00	3.00
Stainless Steel)	Tons	.41	0	0
		25,000	46,000	42,000
Stainless Steel	Lbs.	17,453	738	4,707
Copper & Copper Base Alloy		8,050	7,760	2,820
Brass Mill Products	Lbs.	2,862	180	0
		13,000	20,000	12,000
Copper Wire Mill Products	Lbs.	1.534	. 378	0
Copper & Copper Base Alloy		0	0	400
Foundry Products & Powder	Lbs.	0	0	C
		239,980	180,000	132,200
Aluminum	Lbs.	212.323	100,523	90,000

#### CONSTRUCTION

Controlled Material	Unit Measure	2 Q 52	3 Q 52	4 Q 52
. ,	Short	261.00	11.00	12.00
Carbon Steel Plate	Tons	54.06	.25	0
Carbon Steel	Short	136.00	24.00	12.00
Structural Shapes	Tons	48.65	6.35	0.
Carbon Steel	Short	548.25	300.00	75.00
Other Forms	Tons	196,43	9:05	0
Alloy Steel (excluding	Short	34.00	4.00	3.00
Stainless Steel)	Tons	31.05	.05	0
		63,640	37,000	3,000
Stainless Steel	Lbs.	35,197	2,200	0
Copper & Copper Base Alloy		6,475	2,650	1,000
Brass Mill Products	Lbs.	2,000	200	0
		16,235	13,630	4,000
Copper Wire Mill Products	Lbs.	11.930	1,200	0
Copper & Copper Base Alloy		100	50	. 0
Foundry Products & Powder	Lbs.	100	0	0
		9,985	206,900	100
Aluminum	Lbs.	3,910	200	0

## PURCHASING AND STORES SECTION GENERAL

#### <u>STATISTICS</u>

	<u>G</u>	<u>D</u>	TOTAL
Requisitions on Hand 4-1-52 (Includes 188 Assigned To Gov't.)	919	291	1210
Requisitions Assigned During April	2172	647	2819
Requisitions Placed During April	2235	596	2831
Requisitions on Hand 4-30-52 (Includes 131 Assigned To Gov't.)	856	342	1198
HW ORDERS PLACED HW ALTERATIONS PLACED TOTAL	NUMBER 1376 110 1486		VALUE \$711,777.29 131,625.10 CR. \$580,152.19
HWC ONDERS PLACED HWC ALTERATIONS PLACED TOTAL	466 133 599		\$199,099.83 <u>72,237,22</u> CR. \$126,862.61
AEC ORDERS PLACED DC ORDERS PLACED	161 34		\$108,104.49 7,305.69
<u>OR</u>	ORC		
Government Transfers 0	0		• •
Return Orders Issued 139			

# PURCHASING AND STORES SECTION CONSTRUCTION PROCUREMENT UNIT APRIL 1952

The work load in the Construction Procurement Unit consisted chiefly of adjusting completed purchase orders and cleaning up loose ends in preparation for any new construction work. Purchasing procedures were reviewed and either cancelled or rewritten to bring procedures up to date.

The Purchasing Agent of the Construction Procurement Unit was appointed Chairman of a committee consisting of representation from AEC, Design Section and Projects Section of the Engineering Department and Purchasing & Stores Section. This committee met on several occasions and prepared lists of material which it recommended that General Electric should purchase on future construction projects.

Negotiations were completed with Grane Company with respect to the Redox and TBP connector orders and at the end of the month Records of Purchase were being prepared for submission to AEC for final approval.

The Construction Procurement Unit completed its review of the claim submitted by Southwest Welding & Manufacturing Company and submitted a recommended settlement to the AEC for comment. General Electric Company's recommendation amounted to approximately 50% of the vendor's claim of \$152,439.45.

As a result of cast iron shielding blocks purchased from Apex Steel Corporation not meeting field requirements, four emergency orders were placed to have the blocks machined to correct sizes. Apex Steel Corporation has been contacted regarding responsibility for the incorrectly sized blocks.

Two scrap sales of material located in vendors plants were completed in April. These sales disposed of 15,400 lbs. of scrap stainless steel for \$825.00.

#### PERSONNEL

As of 3-31-52			A	is of 4-	30-52	Met Change				
Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total		Ex.	Mon-Ex.	Total	
7	7	14	7	5	12		0	<b>-</b> 2	-2	

#### SAFETY AND SECURITY

Safety and Security Meetings - 1 Number of Employees Attending - 10

## PURCHASING AND STORES SECTION OPERATIONS PROCUREMENT UNIT

#### APRIL -- 1952

The work load of Operations Procurement Unit has continued at a high level. Requisitions placed during the month include 2180 "G" Operations requisitions and 355 "D" Operations requisitions; a total of 2535 requisitions placed.

The contract for requirements for Sulphuric Acid for the coming year has been negotiated with the Stauffer Chemical Company and submitted to the Atomic Energy Commission for approval.

The supply of aluminum cans remains adequate and orders have been placed to protect our future position.

The bulk Carbon Dioxide tanks, being installed in 100-B, 100-D, and 100-F to allow for delivery of this material in bulk rather than cylinders, will be ready for use in August. This will improve the operating picture and should allow substantial savings in cylinder handling.

The use of chemical Essential Materials peculiar to the Bismuth Phosphate process has been reduced in quantity required to the point that several items, previously of sufficient quantity to justify contracts, will hereafter be placed on spot orders. These materials include Hydrofluoric Acid and Potassium Hydroxide. Sodium Bismuthate and Ferrous Ammonium Sulphate contracts for the past year carried approximately 250% of the actual requirement. Extensions of these two contracts for another twelve months period have been negotiated and submitted to the Atomic Energy Commission for approval.

Quotations have been requested for our requirements for Rock Salt for the coming year. It is expected that this will be completed during the month of May.

#### Personnel

As of 3-31-52			į	As of 4-30-	<u>-52</u>	Net Change			
Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	
11	14	25	11	13	24	0	-1	-1	

#### Safety and Security

Safety and Security Meetings scheduled: 1
Number of employees attending: 24

# PURCHASING AND STORES SECTION INSPECTION AND EXPEDITING UNIT

The work load represented by orders requiring inspection and expediting activity is steadily decreasing. We estimate that this work load has dropped approximately 10% from the preceding month; however, due to the number of orders approaching plantsite deadline dates, it is necessary that we follow these orders more closely, thus having the effect of sustaining our work load.

The number of technical production problems have not increased, but their importance is emphasized by the effect on construction since undelivered fabricated items for 105-C are now limiting items in some phase or other in construction work. One interesting problem was a phase change on the boron stainless steel tubing for the VS Rods. Joint efforts with Engineering have solved the problem to mutual satisfaction. It was not necessary to re-cast any of these tubes as was suspected when the problem was first encountered.

Front and rear face cross header production for 105-C was slowed down by leaks which occurred in cast fittings furnished to the vendor. These leaks required repair of defective fittings and occasioned a considerable delay. The extra costs and time delay involved due to our furnishing defective castings illustrates the impracticability of furnishing untested components to fabricators.

Production of vertical winches has been very slow and appears to be the most seriously limiting item for 105-C. The prime vendor is doing the testing only on these units, and has sublet the machining to several sub-vendors. In order to obtain better control of sub-vendor production a second inspector was assigned to the job.

One technical inspector of office staff has been transferred to E&C.

One field inspector was loaned to Stores for temporary assignment.

#### PERSONNEL

	As of 3-31-52			As of 4-30-52			Net Change		
	Ex.	Non-Ex.	Total	$E_{x}$ .	Non-Ex.	Total	Ex.	Non-Ex.	Total
Inspection Expediting	30 13 43	6 9 15	36 22 58	28 13 41	4 <u>8</u> 12	32 21 53	-2 0 -2	-2 -1 -3	-4 -1 -5

#### SAFETY AND SECURITY

Safety and Security Meetings Scheduled Number of Employees Attending

1 25

# PURCHASING AND STORES SECTION INSPECTION AND EXPEDITING UNIT APRIL 1952

### STATISTICS

### Inspection

Number of open orders requiring inspection	152
Number of open orders being inspected	146
Number of new orders requiring inspection	31
Number of open requisitions requiring inspection	46
Number of completed orders (cancelled, waived, etc.)	67
Number of open orders requiring inspection - sub-vendor	12
Number of open orders being inspected - sub-vendor	11
Number of completed orders - sub-vendor	4

### Expediting

HW Orders expedited in April (active)	407
HW Orders expedited in April (routine)	1186
HWC Orders expedited in April	851
Sub-vendor orders expedited in April	700*
HW Orders completed in April	1252
HWC Orders completed in April	669

\* Estimated

# PURCHASING AND STORES SECTION STORES UNIT APRIL. 1952

#### GENERAL

Maintenance materials, supplies and spare parts disbursed from Operations inventories were valued at \$272,043.81. Receiving reports issued during the month totaled 5106.

Materials and supplies valued at \$49,149.32 were declared excess due to obsolescence and reduction of usage.

2635 purchase requisitions were processed through screening and 503 items were furnished for Stores Unit inventories. Fourteen items of stainless steel, not immediately available on the open market were also furnished to fabricators from Stores Unit inventories.

Material and equipment valued at \$21,611.28, from 12 captions in the 10.20 account (Construction Materials Held for Future Use) were disbursed to construction forces during the month. In addition to the foregoing, materials valued at \$2,512.06, were shipped as directed by the Commission. Materials declared excess from above account totaled \$243,938.56. The total value of materials disposed of during the month was \$287.742.48.

Materials and equipment valued at \$31,035.98, were withdrawn from the 10.10 account (Excess) for use on the project. Excess materials and equipment valued at \$225,427.51 were shipped from the project as directed by the Commission. Total value of Excess materials disposed of this month was \$256,463.49.

During the month 25 formal excess lists totaling \$414,406.54 were submitted to the commission for disposition.

212 representatives of government and private business were escorted through our warehouses and yards for the purpose of negotiating the sale of scrap and transfer of excess property. Two scrap sales were completed this month for a revenue of \$10,071.71.

The decontrol pattern is beginning to make itself felt in most phases of the scrap industry. This is due mostly to the fact that material shortages have been overcome or prices have fallen substantially below the ceilings imposed by OPS. Demand for most scrap metals continues light. The cast scrap market is way below ceiling prices. Lead, Zinc and Copper scrap still remain on the weak side in regards to supply.

Three A.E.C. Surplus - Salvage Sales conducted by our personnel during April resulted in a total revenue of \$13,749.04.

#### SAFETY AND SECURITY

Safety and Security	Meetings Scheduled	10
Number of Employees	Attending	209
Minor Injuries	•	11

## PURCHASING AND STORES SECTION STORES UNIT

PERSONNEL		of 3-31		_	of 4-30		_	t Chang	_
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	EX.	Non-Ex.	Total
Administrative	5	0	5	5	0	5.	0	0	0
Operations Mat'l	3	81	84	5	91	96	<i>†</i> 2	<b>≠</b> 10	<i>f</i> 12
Receiving & Shipping	1	42	43	1	. 44	45	0	<i>f</i> 2	£ 2·
Surplus, Salvage & Scrap Mat'l	. 5	91	96	4	80	84	-1	-11	-12
TOTALS	14	214	228	15	215	230	/1	<del>/</del> 1	<i>f</i> 2

# PURCHASING & STORES SECTION TRAFFIC UNIT April 1952

#### GENERAL

Upon advice that there would be a movement of Nitric Acid, in tank cars, from Hedges, Washington to Hanford Works, a proposal was submitted to the Union Pacific Railroad to establish a rate of 10¢ per cwt. to cover this movement. Our request was granted, and will effect savings of approximately \$168 per car, and total savings of \$7,065 on the anticipated movement.

Through our proposal to the motor carriers reduced rates were established through a Section 22 Quotation to cover Cast Iron Blocks, used on Project C-431-B which were shipped from Hanford to Bremerton and Yakima, Washington, and return. Savings in freight charges amounted to \$560.

The rail carriers, at our request, have published a reduced rate on Lead Bars and Ingots from Portland, Oregon, Seattle and Vancouver, Washington to the project which will effect savings of approximately \$17 per car.

Through negotiations with the motor carriers the rates on compressed gasses from Yakima, Washington to the project in lots up to 30,000 pounds have been reduced from 10 to 11/2¢ per cwt.

The Interstate Commerce Commission issued its final report in Ex Parte No. 175, Increased Freight Rates 1951, permitting the railroads the full amount of the 15% increase in freight rates in all territories originally sought by them in January, 1951. The increases thus authorized are in lieu of increases of 9% in the Eastern Territory and 6% in the Western Territory which became effective on August 28, 1951. Thus the increase in present rates will be 6% in the Eastern Territory and 9% in the Western Territory with coal rates increased 20¢ per ton. The increased rates will become effective on interstate traffic May 2, 1952. Water carriers and freight forwarders were granted similar permissions.

Interstate Commerce Commission Service Order No. 856 which established Saturday as a demurrage day has been cancelled for the period from April 16 to May 31, 1952. During this period Saturday will not be counted as a demurrage day.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of April amounting to \$4,158.11. This makes a total savings from September 1, 1946 to date of \$1,707,671.56.

#### PERSONNEL

			As of 4-30-52				Net Change			
Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total		
2	10	12	2	10 .	12	0	0	0		

# PURCHASING & STORES SECTION TRAFFIC UNIT April 1952

### SAFETY AND SECURITY

Safety and Security Meetings Scheduled 1
Meetings Held 1
Minor Injuries 0

### STATISTICS

### Savings Report

1. Rate reductions obtained from the Carriers:

Commodity	Origin	Sa —	avings for April	Savings 9-1-46 thru March 1952	Total Savings 9-1-46 to Date
Lead Nitric Acid Crude Salt, Undri Rail Carloading	Seattle, Wash. Hedges, Wash. ed Newark, Calif. Various Various	**	80.97 3,700.69 130.19 123.76 122.50		
	•	\$	4,158.11	\$1,703,513.45	\$ 1,707,671.56
2. Freight Bill	Audit		2,984.76	85,107.28	. 440.290, 88
3. Loss & Damage	& Overcharge Claim	s	561.23	112,248.54	112,809.77
4. Ticket Refund	Claims		1,155.70	23,393.80	24,549.50
5. Household Goo	ds Claims		32.04	16,327.08	16,359.12
• • • • •		\$	8,891.84	\$1,940,590.15	\$ 1,949,481.99
Work Volume Repor	<u>t</u>			•	
Reservations Made	•	Ai	il r tel	•	77 129 159
Expense Accounts	Checked				201
Household Goods & Automobiles			vements Arravements Arravements Arrassurance Riderniture Repairs Filed	1 1 1 1 5	
	•	Cl	aims collect	ted - Amount	\$32.04

## PURCHASING & STORES SECTION TRAFFIC UNIT

TRAFFIC UNIT	
April 1952	
Filed Collected - Number Collected - Amount	22 30 <b>\$1,</b> 155.70
Filed Collected - Number Collected - Amount Over & Shorts Processed Damage Reports Processed	4 7 561.23 34 11
	\$2,984.76
	123
Freight Rates Routes	190 255
Air Express Boat Carloading Express Rail Truck	30 2 131 195 840 475
•	. 9
Inbound Outbound	988 841
•	
CMSTP&P NP UP	TOTAL
1 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 7 1 2 22 1 2 1 739 1
	Filed Collected - Number Collected - Amount  Filed Collected - Number Collected - Amount Over & Shorts Processed Damage Reports Processed  Freight Rates Routes Air Express Boat Carloading Express Rail Truck  Inbound Outbound  CMSTP&P NP UP  1 1 2 8 7 1 1 1 2 8 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

# PURCHASING & STORES SECTION TRAFFIC UNIT April 1952

### STATISTICS (CONT.)

### Report of Carloads Received (Cont.)

		CMSTP&P	NP	<u>up</u>	TOTAL
Hydrogen Peroxide			1 .		1
Iron Ore					8
Lead Pigs		1	2	•	3 2 6
Lime			_	2	2
Nitrate of Soda		3	3		
Nitric Acid			5	27	32
Petroleum		1	1	_	2
Phosphoric Acid		_		1	Ţ
Fiping Assemblies		1			1
Salt		1			7
Silica Sand		21	,	7	21
Soda Ash		2	1	1	4
Steel		_		1	<u>.</u>
Sulphuric Acid		1	1	T	8
Valves ·		8		,	0
Vault Doors			•	7	<u> </u>
Merchandise		3	Ţ		14
		<del></del>			
	Total	168	34	678	(38



# TRANSPORTATION SECTION MONTHLY REPORT APRIL 1952

GENERAL

Transportation Section personnel forces increased from 511 to 528 employees during the month by 18 new hires, 14 transfers in, 1 reactivation - personal illness, 7 transfers out, 7 terminations and 2 deactivations - personal illness.

#### RAILROAD ACTIVITIES

Commercial cars handled during April decreased 24% over March. Decline was primarily due to a reduction in receipts of coal and construction materials.

Process service was on a normal basis considering that the majority of move-



Completed revision to control circuit and controller on 80-ton diesel electric locomotives 39-3719, 39-3722, and 39-3726 so that the engines can not be cranked unless the controller is in the neutral position. All Plant owned locomotives are equipped with this safety measure except 39-3725 which is out of service for major repairs.

Railroad track maintenance and rehabilitation work continued on a routine basis. Lining, surfacing and dressing of track required 5,389 man-hours. Installation of ties, rail and other track materials required 650 man-hours. Distribution and handling of track materials required 479 man-hours.

#### AUTOMOTIVE ACTIVITIES

The Plant Bus System transported .48% fewer passengers in April than in March. The following statistics indicated the magnitude of service rendered:

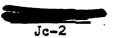
Passenger volume	158,909		
Revenue - bus fares	\$ 7,945.47		
Earnings - transit advertising	(March) \$ 61.89		
Bus trips	7,356		
Bus miles (passenger carrying)	182,836		
Passenger miles	4,684,326		

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	38
Passenger buses - 200-East	8
Passenger buses - 300 Area	6
Passenger buses - Riverland	2
Passenger buses - Pistol Range	1
Passenger buses - White Bluffs	3
Passenger buses - North Richland	3
700-300 Area Shuttle Service	21
Inter-Area Passenger Service	3
Inter-Area Express Service	í

Effective April 7, 222-U Building personnel began riding TBP buses and the 200-West shuttle service to the 222-U Building was discontinued.

ক্ষেপ্ত প্রক্র জন ১০৮ টেই**ল**জ হ'ট ডুড়া ডি







#### Transportation Section

The Richland Bus System transported 5.1% fewer passengers in April than in March. The following statistics indicate the volume of service rendered:

Total passengers including transfers	38,461
Revenue - bus fares	\$ 2,618.11
Earnings - transit advertising (March)	\$ 9.93
Bus trips	3,556
Bus miles (passenger carrying)	18,700
Passenger miles	106,680

Effective April 1, the Transportation Section was relieved of handling both regular and registered mail to the manufacturing areas by the central mail room.

Special bus transportation was furnished to the Atomic Energy Commission on April 23 and 24 for touring the Plant Areas.

Off Plant chauffeured automobile trips (Company business and/or official visitors) totaled 170.

The following tabulation indicates the volume of Drivers Test Service rendered:

Applicants:	Male Femal	e 87 16	Number tests Number rejec		,
Permits issu		imited to drivi	ng with glasses	29 73	
Permits reis	sued:	Routine New AEC	19 300 • 5600	•	

The following tabulation indicates the volume of fuel distribution by Equipment Maintenance personnel:

Equipment maintenance per	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	29,643	15,398	12,007	2,968	81
Received during month	116,610	20,950	18,300	1,576	265
Dispensed during month	108,979	19,889	25,751	1,857	138
Stock at end of month	37,274	16,459	4,556	2,687	208



#### Transportation Section

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	26
Class A Inspections and Repairs	92
Class B Inspections and Lubrications Other routine maintenance repairs	1200
and service calls	1795
Tire repairs	637
Wash jobs	480

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	369	515,923
1B	Buses	157	231,533
1C	Pickup Trucks	453	244,744
1D	Panel, Carryall, Sta. Wagon Armored Cars	126	144,590
1E		12	178
lG	Jeeps	2	662
68 Series	Trucks	273	81,554
		1,392	1,219,184

Summerizing of automotive and heavy equipment was begun on April 28. Antifreeze will be drained and stored for re-use where the quantity of solution and location of equipment makes it possible to effect a savings over the handling cost.

Contaminated lift truck 63-4546 from the 300 Area is being completely overhauled. Work is being performed under S.W.P. regulations.

Shift hours for the 1100 Area field service truck personnel were changed to start at 6:12 a.m. to permit lubrication of grass mowing equipment before it starts to work at 8:00 a.m.

The painting of "Atomic Energy Commission" on approximately 1,450 general purpose vehicles is 85% complete.



Transportation Section

## DECLASSITIED

#### LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of road asphalt material handled by Transportation Services personnel:

	<u>MC 1</u>	MC 3	MC 4	MC 5
Stock at start of month	0	6,238	0	2,803
Received during month	0	9,391	0	a
Dispensed during month	0	15,629	0	0
Stock at end of month	0	0	0	2,803

The following tabulation indicates the volume of road aggregate materials handled by Transportation Services personnel:

	3/4" to 0 Pre-mix Tons	~	3/4" Crushed Rock Cu. Yds.	5/8" Chips Cu.Yds.	1/4" Chips Cu.Yds.
Stock at start of month	92	66	10,423	4,366	6,129
Made during the month	1591	80	2,112	1,186	830
Used during the month	327	146	1,347	0	53
Stock at end of month	1356	0	11,188	5,552	6,906

Maintenance of primary roads required 502 man-hours. Manufacturing and stockpiling of crushed rock and pre-mix materials required 881 man-hours.

Handling of materials and equipment for the Stores Unit at White Bluffs, Hanford, 700, 1100 and 3000 Areas included 86 carloads and 304 truckloads and required 7,038 man-hours.

Handling of Area deliveries required 1,562 man-hours; office furniture and equipment required 1,287 man-hours.



## ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION

#### **APRIL 1952**

May 6, 1952

#### GENERAL

The Section total scheduled work backlog, as of April 30, 1952 was 4,529 man days distributed as follows:

	Days Per <u>Craftsman</u>	Total Man Days	Net Change Man Days
Line Maintenance	63.2	1,959	442 Increase
Substation Maintenance	28.2	479	17 Increase
Telephone Unit	52.3	2,091	121 Decrease

Employment of an Engineer and a Journeyman, resignation of a Foreman, with extended leaves of absence for two journeymen, constitutes a work force reduction from 183 to 182.

Electric power peak demands for April were:

· ·	<u>Date</u>	April KW Demand	Comparative March KW Demand
	4-30-52 (3 pm-3:30 pm)	79,124.1	77,300
	4-8-52 (7 sm-7:30 sm)	24,000.0	27,850

Increased process demand from the previous month resulted from motor tests in Area 100-C. However, the peak demand was slightly under the current billing demand of 79,199 KW, established in January 1952.

A request was made to the A.E.C. for assignment of a 162-174 megacycle frequency band for Richland civil defense local radio coverage. Use of this frequency has the approval of State civil defense authorities and will permit purchase of standard fixed frequency equipment without modifications. If civil defense is discontinued equipment can be used on the Electrical Distribution, or Fire Department, frequencies by a change of crystals and retuning. It could also be adapted to the proposed changed Industrial Patrol frequency.

Richland electrical distribution system alterations were completed for providing a dual power supply for two schools designated as civil defense Field Aid Stations.





#### ELECTRICAL DISTRIBUTION UNIT

#### Maintenance and Operation

Efforts have been made to modify existing critical power procedures to derive maximum benefit from increased line and bus facilities coming into Midway.

A special arrangement was made, with Critical Power Condition Grade "W" established on the Hanford 230 KV loop, to de-energize a North Bonneville line for repairs. This arrangement had previously been impossible without reduced Plant production. A similar arrangement cannot be made for Grand Coulee lines, under present conditions, with power flow from Grand Coulee toward the Portland area. However, the recent addition of a third Grand Coulee line has permitted repairs to any one line while the other two are in service without load.

A study has been completed for modification of critical power procedures on the B.P.A. system to be discussed at Portland.

#### System Expansion and Planning

A forecast of Richland Village power requirements for a period through 1962 was prepared for the A.E.C. This information was requested by the B.P.A. Regional Office at Walla Walla.

Funds have been approved for installation of a second 3750 KVA transformer (Appropriation Request No. S-22) in the 300 Area 115 KV Substation and a requisition has been processed for its procurement.

The new 13.8 KV front bus installed at Substation 151-B, to supply Area 100-C load, was inspected and accepted for operation, 4-18-52. This permits full load testing of Area 100-C motors and the problem of introducing a new peak power demand was studied with the Engineering Department. Plans were developed to correlate testing with production requirements in a manner which would create minimum additions to the January 1952 demand peak. This should result in an approximate \$50,000 saving prior to actual Area operation. The April peak demand was limited to the January value by restricting motor tests to one fully loaded 3500 HP motor.

#### TELEPHONE UNIT

#### Maintenance and Operation

An inventory has been completed of telephone materials stored in the old Richland Labor Yard and 200-E Area. A list of items, estimated at a value of \$19,280, has been prepared for transfer to Excess.

A summary of telephone subscriber service is as follows:



	Subscriber	Lines Avail-	Sides Avail-	Exchange
	Stations in	able for	able for	Lines in
	Service	Service	Service	Service
Richland	4,917 Residen 997 Officia 435 Misc.	•	316	3,861
N. Richland	515	160	27	440
Process Areas	1,344	<u>486</u>	0	<u>1,266</u>
. Total	8,208	736	343	5,567

#### System Expansion and Planning

Cost estimates and procurement data were prepared for proposed telephone cable facilities from the Richland Exchange to the Fifth Housing Addition areas.

A study was completed for constructing a telephone cable (ll pair) line to B.P.A.'s Benton Switching Station to provide control circuits and communications. This was presented to the A.E.C. for a decision on underground construction costing \$6,450 versus aerial line costing \$5,650.

Project CA-473 (100-B Area-New Dial Telephone Exchange). This project has been approved and purchase requisitions processed for exchange equipment. A building site has been approved, near the Badge House, within 100-B Area and building layout sketches presented to Project Engineering.



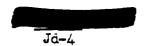


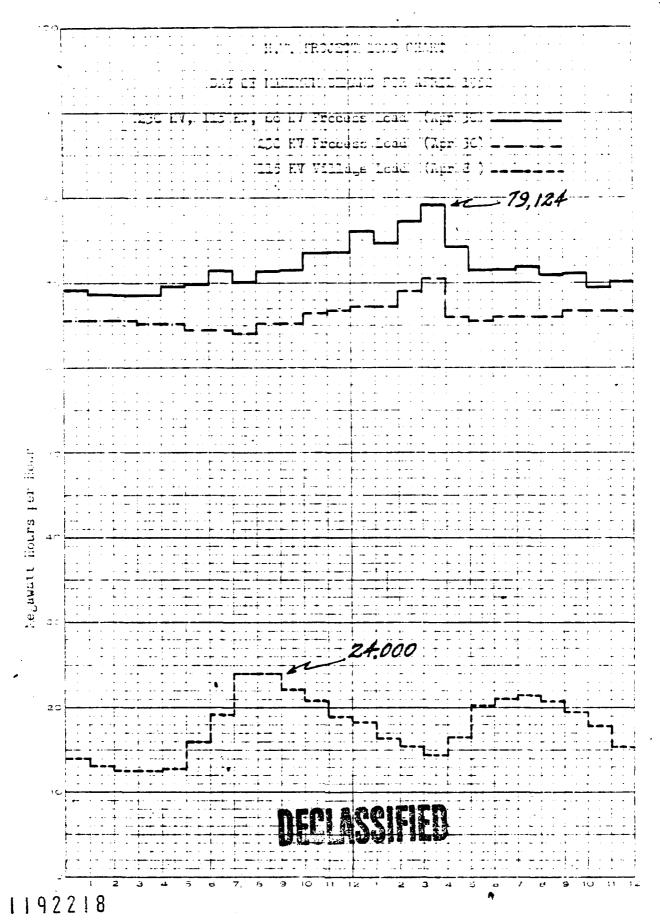
## POWER STATISTICS ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION FOR MONTH ENDING APRIL 30, 1982

	ENERGY -	MW HRS.	MAX DEMA	ND - KW	LOAD FA	CTCR - %
	Mar.	Apr.	Mar.	Arr.	Mar,	Apr,
<u>ITEM</u> 230 KV SYSTEM						
A-2 Cut (100-B)	8,280	8,260	12,600	15,500	86.9	74.1
A-4 Out (100-D)	15,630	14,470	23,200	23,000	90.6	87.3
A-5 Out (100-H)	9,144	8,784	15,000	13.650	81.9	89.4
A-6 Out (100-F)	5,900	7,415	11.800	12,300	67.2	83.7
A-S Out (200 Area)	5,472	4,896	9,720	9,000	75.7	75.6
TOTAL OUT	44,426	43,825	72,520**	73,450**	82.3	82.9
MIDWAY IN	45,060	44,560	67,200*	70,400*	90.1	87.9
Transm. Loss	634	735	•	•	•	
Per cent Loss	1.4	1.6	•			
115 KV SYSTEM						
B1-S4 Out (N. Rich.)	2,568	2,078	4,550	4,090	75.9	7U.0
Richland	13,962	10,280	27,840*	24,000*	67.4	59.5
BB1-S3 Cut(300 Area)	1,000	920	2,160	2,030	62.2	61.4
TCTAL OUT	17,530	13,278	34,550**	30,170**	68.2	61.1
Benton In	5,400	1,080	50,400*	33,600*	14.4	45.0
So. Richland In	12,160	12,320	32,000*	29,200*	51.1	58.6
TOTAL IN	17,560	13,400	82,400**	62,800**	28.6	29.6
Transm. Loss	30	122				
Per cent Loss	.2	•9				
66 KV SYSTEM						
B9-S11 Out (100-C)	666	618	1,350	1,250	66.3	63.7
B7-S10 Out (W.Bluffs)	489	417	1,328	1,553	49.5	37.3
Hanford Out	332	311	600**	600**	74.3	72.0
TOTAL OUT	1,487	1,346	3,278**	3,403**	61.0	54.9
HANFORD IN	1,433	1,,300	2,3503	2,900*	67.6	62.3
Transm. Loss	£ 54	£ 46	•			
Per cent Loss	<i>≠</i> 3.8	<i>≠</i> 3.5			•	
PROJECT TOTAL					22.0	00.0
230 KV Out	44,426	43,825	72,520**	73,450**	82.3	82.9
115 KV Out	17,530	13,278	34,550**		68.2	61.1
66 KV Out	1,487	1,346	3,278**	3,403**	61.0	54.9
TOTAL OUT .	63,443	58,449		107,023**	<b>7</b> 7.3	75.9
230 KV In	45,060	44,560	67,200*	70,400	90.1	87.9
115 KV In	17,560	13,400	82,400**		28.6 47.4	29.6
66 KV In	1,433	1,300	2,850**	2,900**	67.6	62.3
TOTAL IN	64,053	59,260				
Transm. Loss	610 -	811				
Per cent Loss	1.0	1.4				

\*Coincidental Demand
\*\*Non-Coincidental Demand

Average Power Factor - 230 KV System-92.9 Average Power Factor - 115 KV System-94.0 Average Power Factor - 66 KV System-88.7







### UTILITIES AND GENERAL SERVICES DEPARTMENT STATISTICS UNIT

#### MONTHLY REPORT - APRIL, 1952

#### GENERAL - C. A. Bennett

Organization and personnel of the Statistics Unit are summarized as follows:

	Ą	s of 3-3	1-52	A	s of 4-3	0-52	. <u>N</u>	et Chan	ge
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
100 Area Services	1	2	3	1	2	3	0	0	. 0
200 Area Services	2	2	4	2	1	3	0	-1	-1
300 Area Services	1	2	3	1	2	3	0	- O	0
General Services	1	0	1	1	0	1	0	0	0
Methods	2	0	2	2	0	2	0	0	0
Staff	1	1	0	1	ı	0	0	0	0
TOTAL	8	7	15	8	6	14	0	-1	-1

One clerical employee temporarily assigned to the Unit to assist in the study of Redox laboratory precision terminated because of pregnancy. Since this particular assignment was practically completed, no immediate replacement will be necessary.

#### 100 AREA SERVICES - R. F. Cell

Further study of the relationship between slug rupture rates and tube power is being carried on for the Pile Technology Unit in connection with their investigation of the rupture problem. The discharge of a larger number of lower power fringe zone tubes has greatly enhanced the significance of this study. A study is being started to determine any relationship between ruptures and local "hot spots" in the piles which result from rod positions. Other work on this problem included a study of the effect of the number of scrams, startup, etc., on failure rate, and a study of canning data on slugs which later ruptured.

The statistical study of Van Stone corrosion was continued for the Reactor Section. Comparisons were made between corrosion data collected in 1952, 1951, and 1948, with the largest part of the study being concentrated on F pile. At the present time an attempt is being made to evaluate the sources of errors in the corrosion measurements, in order that a valid estimate of the corrosion rate during the past year in all the tubes may be obtained on the basis of the sample already obtained.

A statistical analysis of film formation on one 2-S aluminum plate and one 72-S clad aluminum plate at 60° C. outlet water temperature is being carried on for

the Water Development Group. Particular attention is being given to the determination of any trends in the data, i.e., cycles, and linear, exponential or parabolic trends with time. A comparison of these data with past results is being made, and preparations are being made for the analysis of similar experiments now being conducted.

Statistical analyses and computations on film buildup data obtained in the 100-D flow laboratory on dummy slugs exposed to water of varying composition have been completed for the first such experiment. A similar study will be made of data from a further experiment of this type which is underway at the present time.

Some statistical studies are being made of high temperature corrosion data (30° C. to 135° C.) on 2-S aluminum slug jackets where standard pile water is used. Determinations of weight loss and corrosion rate will be made from these data, which were obtained from 100-D flow laboratory experiments.

In support of an investigation by the Pile Engineering group of pile flow meters, a statistical study involving least square computations is being made of the water flow into four 90 foot diameter tanks upstream of H pile. A determination of the effect of the various measurement errors involved on the computed flow rate is being made.

Computations of a statistical nature are being continued on data from temperature charts of irradiated graphite samples for the Graphite Studies group.

Assistance of a statistical nature was given the Pile Fuels and Pile Materials subnits in determining sample sizes for production tests and subsequent examination of the test pieces. Consideration was also given to the routine inspection of slugs after irradiation for dimensional stability characteristics on the basis of the newly installed lot system in the 300 Area.

Assistance of a mathematical nature was given to the Pile Physics group in the evaluation of an integral which arose in the study of a flux problem. Assistance of a computational nature was given the same group in a study of the effect of graphite on thermal utilization.

#### 200 AREA SERVICES - W. C. Healy

In connection with continuing studies of measurement reliability at accountability points, additional data on Redox process samples were collected and analyzed. Comparisons of plutonium measurements before concentration (E-3), after concentration (PR-line) and at receipt in 231 Building (P-1) was continued, with currently no indication of differences in precision or of bias at any of these points. The special study of metal solution (H-7) samples now definitely indicates somewhat greater errors in sampling than in analysis. Duplicate sampling has provided a firm figure for the reliability of uranium measurements on the final uranium product concentrate (E-12).

Laboratory precisions of Redox samples continued to be steady, so that enough consistent data has now been obtained for the projected evaluation of laboratory reun limits.



Final results from volume results transfer the 231 Building starting solution tanks (P-1) were obtained during the month, so that the extensive study of sampling, analysis, and volume errors at P-1 is now completed.

A comparison between calculated neutrons/grams/second (based on pile exposure) and measured neutrons/gram/second from recent final pieces was made for the Separations Technology Unit, and provided evidence of systematic error in the constant used to arrive at the current measured values.

The regular semi-monthly reports of certain Kr-85 computations were completed and forwarded to the Atomic Energy Commission. A representative of the Statistics Unit attended a meeting at Argonne National Laboratory to discuss these and other proposed computations.

Miscellaneous services rendered during the month included the following: consultation with Chemical Research on the design of experimentation concerned with the detection of DBP (dibutyl phospiate) in the TBP process; investigation of the advisability of employing more than one counting instrument on the discs from a given sample in the 222-S laboratory; and analysis of data from a recent calibration of a 231 Building process vessel.

#### 300 AREA SERVICES - L. G. Waters

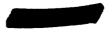
The statistical investigation of the receiver-shipper weight differences of uranium rods weighed by bundles was completed. The study was undertaken to develop a means for detecting weighing bias, and to estimate the maximum allowable difference both for an individual bundle weighing and for a shipment. (Document No. HW-24255, "Statistical Evaluation of Receiver-Shipper Weight Differences of Uranium Rods Weighed by Bundles", to W. K. Wright from L. G. Waters.)

The probability of getting an extra slug per rod at machining when the width of the cut between slugs is reduced was determined for Manufacturing Engineering. This study was made to aid in evaluating cost savings that may accrue if a process change is made. (Document No. HM-24256, "Probability of Getting An Extra Slug Per Rod at Machining", to R. H. Albright from L. G. Waters.)

A statistical study of the Test Pile reactivity of a number of stringers of uranium billet eggs before and after pickling revealed that the higher the TDS value before pickling the greater the decrease after pickling, and that the average after pickling remains relatively constant. This indicates that the surface of the billet eggs, and possibly the surface of the billets, contains some impurity which is responsible for most of the variation in TDS values.

Estimates of variation involved in test pile reactivity measurements were made for the Metal Preparation Section. Precisions of individual measurements, repeated measurements, and final results were determined. In addition, an estimate of the error due to positioning of the stringer was obtained.

Statistical controls were reported on Metal Preparation Section results from Machining, Pickling, Canning and Autoclave, Test Pile, and Melt Plant. In addition, a Metal Quality Report representing material produced by Hanford Works and



Illinckrodt Chemical Works was issued which graphically presented the average analytical results up to March. 1952. Incorporated in this report is a scale which shows the equivalent changes in the resultivity of the metal to be expected from the various impurities present.

Numerous equations concerning coefficients of thermal expansion of experimental rolled uranium were computed in support of Program RDA-572. These equations are being used to determine the feasibility of rolling uranium at sufficiently high temperatures to obtain a random grain orientation.

A study of the residual can wall thickness of 4 and 8 inch uranium slugs was made for the Pile Technology Unit. The study revealed that although the 8 inch can walls are 10 mils thicker than the 4 inch can walls, the average can wall thickness of 8 inch slugs is only 4 mils greater than that of the 4 inch slugs, and approximately the same percentage of each type of slug can be expected to have a residual thickness of less than 15 mils.

In connection with the slug rupture problem, the incidence of autoclave failures was related to the incidence of pile failures by production months. It was noted that the ratio of the autoclave failure rate of group VIII metal to that of group VII was approximately the lame as the ratio of the corresponding slug rupture rates, although no direct month to month correlation could be established either overall or within groups.

The reactivity results obtained from testing the stringer of bare slugs made up or use as a standard for reactivity testing by Argonne National Laboratory were malyzed to determine the confidence limits on the average. (Document No. HW-23975, "Reactivity Confidence Limits of the Tested Uranium Slugs Shipped to Argonne National Laboratory", to H. A. Fowler from L. G. Waters).

#### METHODS - F. H. Tingey

A method was derived for setting control limits on the percent defective canned slugs due to each major criterion of rejection. This method is adaptable to lots of any size and the general technique gives promise of being applicable to a wide class of problems.

A study was made with regard to the validity of the accepted practice of repeated sampling by pairs until the values of a given pair differ by less than a predetermined amount, and the alternate method of repeated sampling until two values are obtained within a predetermined amount of each other. If the variance of the mean of the two so determined values is considered, it is possible to show in the first case that for normally distributed results this variance is the same as the variance of the mean of the first pair sampled, and thus the technique does not increase the precision of the estimate. The second method results in a reduced variance of the mean of the two determined values; however, this reduction is slight. Upon receipt of I.B.M. cards of random normal deviates, a "Monte Carlo" type study will be made of this and other allied problems with the intention of improving the techniques now being used.

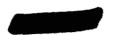


HW-24337



The abstracting of current statistical literature for subsequent dissemination of techniques to the Senior Statisticians was continued. Assistance was rendered the Senior Statisticians on statistical problems that did not lend themselves to immediate analyses. Such problems as the analysis of errors involved in test pile measurements, Van Stone flange corrosion, water quality and a sampling plan for incoming can shipments fell in this category.

The labor turnover problem as mentioned in last months report has been postponed in anticipation of the proposed placing of all personnel records on I.B.M. cards. When such is the case the data necessary for the analysis of this problem will be readily available.



#### UTILITIES AND GENERAL SERVICES DEPARTMENT COMPUTING UNIT

#### MONTHLY REPORT - APRIL, 1952

Following is the month end summary of personnel:

	A	s of 3-31	<u>- 52</u>	As	of 4-30	<u>-52</u>		Net Chan	ge
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff Planning Operations	1 5 5	2 7 24	3 12 29	1 5 5	2 7 35	3 12 40	0	0 0 √11	0 0 ≠11
TOTAL	11	33	44	11	44	55	0	/11	<i>/</i> 11

There were no terminations during the month. Six machine operator trainees and five key punch trainees were hired. Eight of these employees were transferred from other departments at Hanford.

A series of weekly seminars on the problems of numerical calculus and machine programming were begun April 14. It is believed these meetings will provide a means to disseminate new knowledge and to standardize existing procedures. Topics discussed thus far deal with generalized card programmed calculator solutions of simultaneous equations.

Approximately 60% of the routine work was put on a scheduled basis during the month. A formalized step by step schedule was built up for each of the jobs concerned. This made it impossible for a particular operator to be assigned to a certain job as the operators rotate through shift assignments. Thus, the operators are now assigned to machines instead of jobs. The work flows from machine to machine in production line fashion. The written procedures have been expanded to provide the operators very detailed instructions to facilitate handling of the work by relatively inexperienced personnel.

Most of the procedural details have been completed for the weekly payroll preparation job. The difficult control panels have been designed and most of them have been wired. The personnel master file and first quarter accumulated earnings have been key punched. Plans are being made for a dry run on the Manufacturing Department time cards for the week of May 11. This run will disclose any difficulties that may exist in the present procedure.

IBM field representatives attended conferences with stores and with procedure analysis personnel pertaining to proposed inventory control methods utilizing IBM equipment. The procedure and control panels for commercial electricity billing have been completed and are ready for the first run in May.

A procedural revision of the work order cost job for Community Real Estate and Services Department was made to provide better accuracy control of the assignment of charges. Revision of the above cost procedure and also of the cost procedures for Manufacturing Department and Utilities and General Services





Department have been made to provide Financial Department personnel the information to detect overruns on work order authorizations.

A procedure has been prepared for fitting curves by a least squares method to exempt salary data from the survey now being made by the Salary Administration office. These curves will be accurate representations of the field data and will provide the means for its efficient usage.

Preliminary discussions have been held with representatives of the Metal Preparation Section and the Statistics Unit to assess the problem of data reduction and computing on data pertaining to metal preparation. As a result, the Computing Unit has undertaken two projects:

- 1. Metal preparation data, i.e., machining, canning, inspection and autoclave data, which was previously processed by the Statistics Unit, will now be processed by machine in the Computing Unit. Reports will be prepared monthly and will contain breakdowns by lot of machining yields, canning yields, canning failure types, autoclave failure types, etc. The first report will be for the month of April. The compilation and recording of this data by hand is a large scale job, but machine methods are expected to reduce the labor by 90%. In addition to preparing a monthly report, it will be possible to use this data in conjunction with the metal quality data to obtain correlations between metal quality and process yields, and possibly between these two and the behavior of the finished slug (e.g., reactivity, rupture, etc.). Further use of this data is expected to be found.
- 2. The methods employed by the Metal Preparation Section to estimate required monthly metal receipts have been studied, and a scheme devised whereby the necessary input data may be phoned in, and a year's forecast of metal receipts obtained in less than an hour. While there is no significant saving to cost through applying machine methods to this problem, the saving in time and the assurance of accuracy are important to the customer and warrant the use of machines.

Calculations on the slug rupture problem have been extended. The work now requires the preparation of frequency distributions of all tubes in all piles by month, pile, metal group, orifice zone, charging date, power, and exposure. The results of this study are expected to be useful in assessing the improvement effected by group 9 metal. A request for a similar breakdown of group 8 metal tubes has been made adding exposure distributions to the power breakdowns for the period July, 1951 to February, 1952 as previously reported.

The problem of a critical cube in an infinite reflector is in the final stages of completion. The results are available as a graph of critical buck-



ling vs. the size of the cube. This graph is being compared with that for the buckling of the sphere vs. its radius. The differences between these solutions are being further analyzed in terms of discrepancies encountered in recent criticality measurements in which sphere geometry was postulated. This is an extremely difficult problem and the possibility of obtaining solutions by numerical integrations in three dimensions is being considered. Complications arise from the unusual boundary conditions and the unknown buckling.

The isotopic build up and decay calculations relating to the pile cooling water have been completed after 80 hours of card program calculator operation. The results of these calculations are to be summarized and averaged.

The programming has been completed for the calculation of heat conductance through the lattic at F pile. A backlog of 2000 sets of values await calculation. This problem will be handled on a monthly routine basis in the future. Further calculations are requested on the boiling disease problem. Considerable procedure revision is required for this calculation. Reference tables were made on 2 mathematical functions pertaining to diffusion problems.

Calculation has begun on the problem of pile cell temperature distribution as a function of transients in the cooling water flow. Since analytical solutions cannot be obtained, the differential equation must be solved by numerical methods. Some terms involve differences between large quantities, which creates a degree of instability in the finite difference numerical solution. Further investigation will be required to improve the methods of solution.

Routine reports and calculations were made during April as follows:

Exempt salary distribution; weekly payroll distribution for Manufacturing Department, Utilities and General Services Department, and Technical Section; work order cost reports for Manufacturing Department, Utilities and General Services Department, and Community and Real Estate Services Department; motorized equipment costs; public health activities; special requests exposures, D and F pile graphite temperature calculations; aquatic biology; wind calculation; synoptic meteorological calculations; sheep thyroid and radioactivity, and the smoke stack integral.

Provisions are being made for calculating three months summaries, giving average radioactivities on the aquatic biology data. This report was previously prepared by hand. Correlations were made between simultaneous wind directions at the various stations for the period August to December, 1951. The February and March results on the sheep data were summarized to yield specific activities for each sheep group by 30 day intervals. The blood count study is being resumed and will require the processing of data put on cards in 1950 to yield day to day averages of sheep blood constituents.



The same of		1	HW-24337-2K
DEGLASSI	CARD VOLUME	MACHINE UTILIZATION REPORT	NUMBER OF REPORTS
FOR THE FINANCIAL DEPARTMENT:			
Exempt Salary Distribution Technical Cost Distribution Report Manufacturing Payroll Distribution Report General Payroll Distribution Report Manufacturing Work Order Cost Community Work Order Cost General Work Order Cost General Motorized Equipment Cost Electrical Billing Check Writing Deduction & Payroll Statistics Service Orders	6,700 3,000 48,152 20,262 29,450 16,312 37,482 11,500 150 26,000 1,100	61 131 823 346 353 158 493 350 11 254 171	2 5 10 9 38 12 26 14 0
	200,108	3,151	116
FOR THE RADIOLOGICAL SCIENCES DEPARTMENT:	-		
Monthly Meteorological Study Weather Station Wind Study Zoology Thyroid Counts Aquatic Biology (Regular) Smokestack Integral Isotope Buildup and Decay Zoology Sheep Radioanalyses Zoology Sheep Blood Record	8,000 10,000 400 300 300 20,000 100	94 312 41 26 492 2,595 8 18	1 1 1 1 0 0 0
·	39,200	3,586	6
FOR THE MEDICAL DEPARTMENT:		•	
Public Health Activities	300	4	5
	300	4	5
FOR THE ATOMIC ENERGY COMMISSION:			
A.E.C. Quarterly Motorized Equipment	2,200	236	2
	2,200	236	. 2
FOR THE EMPLOYEE & PUBLIC RELATIONS DEPARTMENT:			
Manpower Survey Quarterly	3,000	46	8
1192227	3,000	, 46	8

	NEW CARD VOLUME	MACHINE UTILIZATION REPORT	NUMBER OF REPORTS
FOR THE MANUFACTURING DEPARTMENT:			
Metal Quality Preparation	1,000	90	0
	· <del></del>	<del></del>	
	1,000	90	0
FOR THE SALARY ADMINISTRATION DEPARTMENT:			
Exempt Salary Statistics	5,200	88	12
	5,200	88	12
FOR THE ENGINEERING DEPARTMENT:			
Temperature Maps	2,000	11	8
Graphite Temperature Calculations	200	64	2
SR Exposure Calculations	300	124	. 7
Ruptured Slug Correlation Study	12,000	320	3
Film Buildup Calculation 100-D Flow Lab.	300	4	0
Pile Poisoning Integral No. 2	200	10	0
Least Square Cosine Curve Fitting	0 700	120	0
Slug Skin & Axial Temperature	2,700	1,318	1
Slug Stress Analysis	2,500	890	2 2
Separations Sampling Lattice Conductance Studies	1,000	45	2
<u> </u>	10,000	246	3
Savannah River Diffusion Study Tube Experiment from Graph	1,500	85	1.
Heat Transfer Project	1,200	119	3 0
Exponential Integral Tables	3,200	275 26	1
Exhonemerat InteRigit ISDIes	3,500	20	
	40,600	3,657	33
GRAND TOTALS	291,608	10,858	182

## DECLASSIFIED

#### EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

#### SUMMARY -- APRIL, 1952

The number of applicants interviewed in April was 1,262 as compared with 1,232 in March. Of these applicants, 353 were individuals who applied for employment with General Electric for the first time. In addition, 95 new applicants applied by mail. Open, nonexempt, nontechnical requisitions increased from 200 at the beginning of the month to 203 at month end. Total Plant roll decreased from 8.955 to 8.839 with total separations including 56 laid-off for lack of work, however, most of these accepted employment with the Atomic Energy Commission or one of its contractors. Turnover rate increased from 2.10% in March to 2.29% in April. During April, 44 new requests for transfer to other type work were received by Employment and 24 transfers were effected. Attendance recognition awards were distributed for 88 employees who qualified for one-year awards during March. The Steering Committee established to promote the formulation of a General Electric Women's Club for Hanford Works met on April 7, at which time membership and nominating committees were appointed. A general meeting was held on April 29, at which time officers were elected. As of month end there were 248 members of this newly formed club and plans were being made for installation of officers.

One employee died during the month, and one employee retired. One hundred ninety-two visits were made to employees confined to Kadlec Hospital and 74 checks were delivered to employees confined either at home or in the hospital. At month end, participation in the Pension Plan was 94%, in the Insurance Plan 98.3%, and in the Employee Savings and Stock Bonus Plan 43.3%. In a further effort to enroll the 405 eligible non-participants in the Pension Plan, letters with enrollment cards were mailed to the home addresses of these people. By month end, 10 new participants had enrolled as a direct result of this effort. At month end there were 971 registered under Selective Service, and 735 military reservists were on the roll. Since August 1, 1950, 203 employees have terminated to enter military service, of which 17 have returned, leaving 186 still in military leave status.

Management Orientation Program was presented on April 7 with a total of 27 new exempt personnel attending. Supervisor's Handbook Program was presented on April 8 with a total of 17 supervisors in attendance. The G.E. 9-Point Program was presented on April 8 with 24 new supervisors in attendance. Effective Business Management Program was presented on April 16 with 16 new supervisors in attendance. Labor Management Relations Program was presented on April 17 with a total of 32 supervisors in attendance. Special Supervisory Considerations Program was presented on April 17 with a total of 25 supervisors in attendance. Policy Seminar was conducted on April 23 and 24 with a total of 28 supervisors. Four Principles and Methods of Supervision groups completed the course on April 9. Certificates were presented at a dinner meeting held April 16. A total of 26 Supervisor's Handbooks were issued during April; 66 pages of revisions of the handbook were sent to the printers during the current month. A total of 73 new

Employee and Public Relations Summary

employees were given Orientation during April. Two members of the local Lion's Club completed the HOBSO Institute in this report period. Four members of the Training Section attended the monthly meeting of the Washington State Training Directors Society in Seattle on April 11. Meetings have been held to recommend material to be included in the 1952 Technical Graduates introductory program.

A total of 60 releases were distributed during the month. Of these, twenty-six were sent to the "local list" and seven to the "daily list".

"30 for the Month" was written and distributed. This issue summarized public relations activities for the months of January, February and March.

Two stories for the General Electric publication "Adventures Ahead", were written and submitted for publication in the July-August issue of the company magazine.

The April Community Newsletter was mailed to community leaders in Richland, and for the first time to ministers and school officials in Pasco and Kennewick.

A total of 20 papers were submitted for clearance during the month by Hanford Works authors.

A monthly civil defense newsletter was readied for production.

The State Civil Defense Director was invited to visit Richland, June 4, and inspect the community's CD facilities.

A total of 6,782 prints were produced during the month. Of the total prints produced, 5,098 were for employee identification and area admittance badges.

The Kadlec Hospital Annual Open House was promoted through news stories, pictures, letters and posters.

A total of thirteen G-E and University of Washington Educational films were booked for plant and community showings during the month.

Five 15-minute panel questions sessions of the Hanford Works Science Forum were tape recorded.

"What's the Idea", a sound slide film to promote interest in the Suggestion System, was produced at the request of the Hanford Works Suggestion System. Another sound slide film, "They Shall Not Perish," was completed during the month. It tells the story of Hanford District Civil Defense, its organization, facilities, and preparedness.

Two radio plays were recorded for the Recreation and Civil Affairs Unit, Youth Council, and Richland Children's Theater.

Employee and Public Relations Summary

The Works NEWS furnished publicity on the Red Feather agencies, Easter Seal promotion, Cancer Drive, Suggestion System, and the Central Washington Chest X-ray Unit.

Three women's pages, and one full page feature on the YWCA were prepared for the Works NEWS during the month of April.

An information release time-table for promotion of the employee services fund was drawn up, working in cooperation with Employee Services, and an employee newsletter was prepared for release.

Current "take" figures for the information rack service are as follows: Edison and Electricity, 908 copies; Romance of Electricity, 719; Adventures Inside the Atom. 1284; Adventures in Electricity No. 2, 1373; Adventures Into the Past, 870 and Steinmetz, Latter Day Vulcan, 629 copies.

The Company was advised by the NIRB that Case No. 19-RC-1051 (petition for representation election filed by Laboratory Assistants) had been withdrawn without prejudice. Certain personnel in North Richland Powerhouse have petitioned for representation by the HAMTC. Local unions and the Company agreed upon an increase in isolation pay of 42 cents per day. A hearing was conducted relative to the decertification of the Hanford Guards Union, Local 21. No decision from the Board has been received as of this date. An unfair labor charge was filed with the NIRB by Loren M. Taylor who contends that he was discharged because of his CIO activities and not for fighting on the job as the Company contends.

The Davis Panel recommended that the Boilermakers continue with the present isolation pay arrangement and operation under the Master Agreement; no mutual agreement reached. Teamsters on the job despite the Joint Board's failure to render a decision in this dispute which caused two stoppages in March. A decision is promised at the next Board meeting. On April 17, a tentative Project Negotiating Committee was selected. The first item of business involves the negotiation of a revised Master Agreement for effectivity during the  $3\frac{1}{2}$  year period contemplated for Program X. Construction returned to a five-day week schedule on April 14, 1952. In Carpenter Negotiations, agreement was reached on an  $8\frac{1}{2}$  cents wage increase. Sheet Metal Workers agreed upon a revised Schedule "A" including a compromise vacation plan. The Painters agreed on a 6-cent increase, plus an undetermined amount expected from current negotiations with other contractors in the area. Ironworkers were granted a 15-cent increase in April 9 negotiations. The Cement Masons' revised Schedule "A" provides for a wage increase of 17 cents per hour effective January 1, 1952.

Tentative reimbursement authorization approval was given by the AEC on our request for the extension of the nonexempt overtime pay practices to individuals

Employee and Public Relations Summary

classified as Supervisors-in-Training. An application concerning this modification of our overtime pay policy for Supervisors-in-Training is now pending before the WSB. Reimbursement authorization was received from the AEC for the establishment of two new classifications of "Executive Secretary, Grade 21" and "Executive Secretary, Grade 19," both of which were placed in effect. During the month of April, joint applications in connection with the March 15, 1952 cost-of-living adjustment, signed by officials of the Hanford Works Unions, were forwarded to the General Electric Company office in New York. Work was continued on the annual General Electric Company Northwest Area Rate Survey.

#### EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

#### APRIL, 1952

#### ORGANIZATION AND PERSONNEL

#### General

Effective April 16, 1952, Harriet M. Perkins, a Secretary A assigned to the Manager, Employee and Public Relations Department, went off the active roll.

Effective April 14, 1952, Mary C. Ogston, a Secretary B assigned to the Training Section was upgraded to Secretary A, and assigned to the Manager, Employee and Public Relations Department.

#### Employment and Employee Services

There were no organizational changes during April.

#### Training and Program Development

Effective April 1, 1952, R. B. Shoen transferred from Union Relations to the Training Section as Staff Assistant.

Effective April 7, 1952, Norvelle Ebbersol, a rotational trainee was transferred to the 300 Area.

Effective April 14, 1952, Mary C. Ogston, a Secretary B assigned to the Training Section was upgraded to Secretary A, and assigned to the Manager, Employee and Public Relations Department.

Effective April 21, 1952, Luetta M. Stepper, a Steno Typist B, transferred from Utilities and General Services Department to the Training Section.

Effective April 23, 1952, J. A. Wood, Training Supervisor, was reactivated. He had previously been removed from the rolls for personal illness.

#### Public Relations

Effective April 4, 1952, one Publicity Writer terminated to start his own business in Richland.

#### Union Relations

Effective April 1, 1952, R. B. Shoen transferred to the Training and Program Development Section.

Effective April 2, 1952, Marjorie H. Stocker, a General Clerk B was reactivated in the Wage Rates Unit.

Number of Employees on Rol	.l Ap	ril, 1952
Beginning of Month	_	109
End of Month		109
Net	Change	0

#### ACTIVITIES

Employment and Employee Services

Employment

	March, 1952	April, 1952
Applicants interviewed	1,232	1,262

353 of the applicants interviewed during April were individuals who applied for employment with the Company for the first time. In addition, 95 applications were received through the mail.

Open Requisitions	•	March, 1952	April, 1952
Exempt .		1	1
Nonexempt		200	203

Of the 200 open, nonexempt, nontechnical requisitions at the beginning of the month, 78 were covered by interim commitments. Of the 203 open, nonexempt, nontechnical requisitions at month end, 85 were covered by interim commitments. During April, 112 new requisitions were received requesting the employment of 144 nonexempt, nontechnical employees.

	March, 1952	April, 1952
Employees added to the rolls Employees removed from the rolls	89 189	90 206
NET GAIN OR LOSS	-100	-116

Of the 116 employees removed from the rolls, 56 were removed due to lack of work, 13 of which were in Bargaining Units. Most of the people laid off for lack of work accepted employment with the Atomic Energy Commission or its contractors.

#### Turnover:

·	March, 1952 Male Female	April, 1952 Male Female
Including employees who were laid off for lack of work	1.65% 3.81%	1.51% 5-43%
Excluding employees who were laid off for lack of work	1.28% 3.42%	1.20% 3.52%
Over-all Turnover:		
Including employees who were laid off	March, 1952	April, 1952
for lack of work	2.10%	2.2%
Excluding employees who were laid off for lack of work	1.72%	1.66%

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During April, 48 employees left voluntarily to accept other employment, 6 left to enter military service, and 7 left to enter business for self.

#### Transfer Data

Accumulative total o	f requests for transfer received since 1-1-52	194
	or transfer received during April	لملبأ
Number interviewed is	n April, including promotional transfers	55
	n April, including promotional transfers	51+
Transfers effected s	ince 1-1-52, including promotional transfers	111
Transfers effected in	n April for employees being laid off	8
	ers transferred out of steno. pool in April	2
Transfer requests ac	tive at month end	222

During April, 20 people whose continuity of service was broken while in an inactive status were so informed by letter.

A total of 68 hospital calls were made during April and checks delivered each Friday to female employees confined to the hospital.

IBM cards covering 2,130 additions, terminations, and changes were submitted to the Atomic Energy Commission on April 25, 1952, to maintain the AEC Manpower Inventory on a current basis.

The Steering Committee established to promote the formulation of a General Electric Women's Club for Hanford Works, met on April 7, at which time membership and nominating committees were appointed. A general meeting was held on April 29, 1952, at which time officers were elected. As of month end there were 248 members of this newly formed club and plans were being made for installation of officers.

Employment Statistics

Number of employees on rolls	•		· <u>3-31-52</u>	4-30-52
Exempt - Male Female			1,935 58 1,993	-1,946 58 2,004
Nonexempt - Male Female			5,108 1,798 6,906	5,050 1,730 6,780
Community Firemen	TOTAL	•	<u>56</u> 8,955	<u>55</u> 8,839

ADDITIONS TO	THE ROLLS			
	Exempt	Nonexempt	Community Firemen	Total
New Hires Re-engaged Reactivations Transfers (from other Divisions)	6 0 2 0	63 4 15 0	0 0 0	69 4 17 0
Actual additions Payroll exchanges	8 30 <sup>a</sup>	82 7 <sup>b</sup>	0	90 <u>37</u>
GROSS ADDITIONS	38	89	0	127
TERMINATIONS 1	FROM THE F	ROLLS		
Actual Terminations Removals from rolls (deactivations) Payroll exchanges Transfers (to other Divisions)	16 3 7 <sup>c</sup> 1	138 46 30 <sup>d</sup>	0 1 0 0	154 50 37 2
GROSS TERMINATIONS	27	215	ı	243
GEN	ERAL			
•		<u>3</u>	-1952	4-1952
Photographs taken Fingerprint impressions (taken in dup	licate)		243 252	230 262
ABSENTEEISM S	STATISTICS	3 <sup>e</sup>		
		<u>3</u>	-1952	4-1952
Male Female Total Plant Average			2.50% 4.19 2.86	2.16% 4.52% 2.64%
PERSONNEL SECURITY	QUESTION	NAIRES PROC	ESSED	
		<u>3</u>	-1952	4-1952
General Electric cases Facility cases			71 30	168 
aTransferred from Weekly Payroll bTransferred from Monthly Payroll Transferred to Weekly Payroll dTransferred to Monthly Payroll eStatistics furnished by Payroll	TOTAL		101	227
,	ĸ-8			

#### INVESTIGATION STATISTICS

	3-1952	4-1952
Cases received during the month Cases closed Cases found satisfactory for employment Cases found unsatisfactory for employment Cases closed before investigation completed Special investigations conducted	314 228 367 . 5 . 7	199 196 153 5 9
PERFECT ATTENDANCE RECOGNITION AWARDS		
Total one-year awards to date One-year awards made in April for those qualifying in March Total two-year awards to date Two-year awards made in April for those qualifying in March Employee Services		2,766 88 590 51

Employee Services

The following visits were made with employees during the month by a representative of Employee Services:

Employee contacts made at Kadlec Hospital	124
Salary checks delivered to employees at Kadlec Hospital	58
Salary checks delivered to employees at home	13
Disability checks delivered to employees at home	3

At month end participation in Benefit Plans was as follows:

Pension Plan	94%	,
Insurance Plan	98.	
Employee Savings and Stock Bonus Plan	43.	3

One employee died during April, namely:

Austin R. McMillan, W-9467-UM, Utilities and General Services

Nineteen letters were written to deceased employees' families during April, concerning payment of monies due them from the Company, and also to answer their questions.

Since September 1, 1946, 82 life insurance claims have been paid totaling \$459,000.00.

One employee retired during April, namely:

Jeane A. Findle, W-2829-VRH, Normal Retirement

During April, 23 letters were written to retired employees providing them with information of general interest. To date 190 employees have retired at Hanford Works, of which 90 are continuing their residence in the vicinity. 1192237

K-9

In connection with the Pre-Retirement Program, 26 contacts were made with employees, bringing the total to 133, who will be retiring within the next five years.

Even though participation in the Pension Plan continues at a fairly good level, about the first of April we had 405 eligible non-participants in the plan and a further effort has been made to enroll them by a sales appeal type letter being mailed to the home addresses of each. Enrollment cards were sent with the letters. By month end, 10 new participants had enrolled as a direct result of this effort.

As numerous employees have expressed a desire that a way be found to eliminate the many fund drives, a committee was formulated during April to investigate interest in the establishment of some sort of an employees service fund. Then if this survey indicates an interest in promoting such a plan, the committee will serve to promote it. The committee is comprised of 30 members, including 22 nonexempt employees, both union and non-union, and represent a cross section of Hanford Works men and women. The first official meeting of the committee has been scheduled for the early part of May. It is planned to survey interest in the form of a questionnaire to all employees.

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	735
Number who returned to active duty to date	96
Number who returned to active duty in April	1
Deferments requested to date	106
Deferments granted	99
Deferments pending	O
Deferments denied	74
Deferment requests withdrawn	3

The statistics with respect to employees registered under Selective Service are as follows:

Employees registered Employees registered who are veterans Employees registered who are non-veterans Deferments requested to date (including renewals)	971 <b>*</b> • 443 528 518
Deferments granted	357
Deferments denied and appealed at state levels	11
Deferments denied and appealed at local levels	2
Deferments denied and pending at national level	l

\*Last month's figure incorrectly reported.

Deferments denied by local board and not appealed	2
Deferments denied by state board and not appealed	9
Deferments denied at national level (by Gen. Hershey's Office	9
Deferments denied at national level (by President)	ĺ
Deferments denied by local and state boards and pending for	_
review	0
Deferments requested, employees later reclassified	56
Deferments requested, later withdrawn	32
Deferments pending	46
· · · · · · · · · · · · · · · · · · ·	+0
Military terminations since 8-1-1950 are as follows:	
Reservists recalled	96
Selective Service	105**
Female employees enlisted	10)
TOTAL	203
	20)
Employees returned from military service:	
Reservists	16
Selective Service	1
TOTAL .	17
	<b>-</b> 1
Number of employees still in military leave status	186

<sup>\*\*\*</sup>One employee who terminated for military leave in March was rejected for physical disability and has been removed from the Selective Service Military Leave list. The employee subsequently formally resigned from the Company to accept employment elsewhere.

TELLINING AND PROGRAM DEVELOPMENT

MANAGIMENT ORIENTATION PROGRAM was presented on April 7 with a total of 27 new exempt personnel attending. This program is designed to welcome new exempt personnel of the Nucleonics Division to the management team. At the special luncheon held for this group, Mr. D. W. McLenegan was guest and made a short talk.

SUPERVISOR'S HANDROCK FROGRAM was presented on April 8 with a total of 17 supervisors in attendence. This 4-hour program is designed to acquaint new supervisors with the use of this important management tool

THE G D 9-FOINT FROMEM was presented on April 8 to 24 new supervisors. It is the desire of the Mucleonics Division to keep before all members of management and to give new members an opportunity to become acquainted with the importance of the nine elements included in this program.

EFFECTIVE BUSINESS MANAGEMENT FROGRAM was presented on april 16 with a total of 16 new supervisors in attendance. This program is designed to include the HOBSO I Program and to assist them to understand our company's operation by reviewing the annual report.

LABOR MANAGEMENT RULATIONS PROGRAM was presented on April 17 with a total of 32 supervisors in attendance. This program is designed to acquaint supervisory management with the philosophy necessary to operate under a union contract and to apply intelligently the understandings within the agreements.

SFECIAL SUPERVISORY CONSIDERATIONS PROGRAM was presented on April 17 with a total of 25 supervisors in attendance. This 4-hour program is designed to help supervision hold in mind the necessary cooperation required in successful leadership and includes constructive action in methods of improvement by incorporating a cost control section.

<u>POLICY SECTIMAR</u> was again conducted on April 23 and 24. A total of 28 supervisors attended This 16-hour program is designed to acquaint supervisors with the purpose and philosophy of our plans, policies and procedures by reviewing sections of OPG's to gain uniform understanding and interpretation.

PRINCIPLES AND METHODS OF SUPERVISION. PMS conference groups 21, 22, 23, and 24 completed their conferences on April 9. A dinner meeting was held on April 16 at which time 77 members of the conferences together with 12 guests of the Advisory Committee were in attendance. Mr. W. E. Johnson was principle speaker at this dinner meeting at which time completion certificates were presented to members of the conference groups. A total of 80 supervisors completed PMS in these four conference groups, making a total of 455 supervisors having completed PMS at Hanford Works to date.

SUPERVISOR'S HANDBOOKS, Recently members of departments were requested to return handbooks not in use or needed and approximately 169 of these are still on hand in the Training Section, 17 of which are not usable as they lack proper revised pages which at this time are not available. These

THAINING AND PHOGRAM DEVELOPMENT

handbooks will be kept in readiness for issuance and a count of handbooks is as follows:

Number of handbooks issued prior to April 1, 1952	- 1,344
Number of handbooks issued during April	- 25
Number of handbooks returned during April	- 39
Number of handbooks issued to date	- 1,331
Number of handbooks on hand	<b>-</b> <u>169</u>
Total number of handbooks	- 1,500

A total of 66 pages including revisions to keep the handbook current have been sent to printing and should be issued next month.

ORIENTATION OF New EMPLOYEES. A total of 73 employees, 70 new and 3 reengaged employees, 97.2% choosing to participate in the G.E. Insurance Plan and 91.7% electing to participate in the G.E. Pension Plan. To keep the orientation current the booklet "Gotta Grievance?" is now distributed to employees through orientation since all employees on the roll as of April 1 received their copy through the plant mail.

SPECIAL MEETINGS. At the request of supervision of the Community Maintenance Unit a 1-hour meeting was conducted with 42 members of their employ present to acquaint them with what is presented in daily new employee orientation. They requested this program because it has been approximately five years since any of them had attended an orientation.

Two members of the local Lion's Club have completed the HOBSO Institute conducted by the Training Section and will make presentation in the community in the future.

Four members of the Training Section attended the monthly meeting of the washington State Training Directors Society in Seattle on April 11. D. G. Dayton presented a paper on "Confusing Conversation."

Civil Defense Coordinator Rod weston contacted the Training Section and requested that we prepare four 2-hour training meetings which we will later present to block wardens and their alternates.

An introductory Technical Graduate program, recommended by the Subcommittee appointed by the Education Committee will again be presented. This committee met on April 16 and 24 and prepared a tentative program to begin on June 24. The recommendations will be presented at the next Education Committee meeting.

Film and program previews were attended by members of Training Section to preview the film prepared on the local Suggestion System; and program "In Our Hands", a product of American Economics Foundation. Both the film and program were found to be of interest.

1192241

# POOR QUALITY ORIGINAL

Employee and Public Relations Tension Plan Booklets. 220 Pension Plan Cerds and Training Program Attender STREET NO NORTH DATESTA four collect of G.E. WINTO Electronts, 100 Insurance Application Cards, 400 Tension Flan Cords and Training Program Attendance Tension Flan Cords and Training Section.

Records for Transportation Section and Project Engineering Section. Tension Flan Booklets, 220 Pension Flan Cerds and Training Program A Records for Transportation Section and Project Engineering Section.

OFFICE Mr. R. B. Shoen joined the section as Staff Assistant as of OFFICE C. Orston Menuser as Secretary effective Meril 21.

Step of as Stenc-Typist 3 effective Arril 21.

Step of as Stenc-Typist 3 effective Arril 21.

Step of as Stenc-Typist 3 effective for love and trunsferred from Training Section to Employee and trunsferred from Training Section Werland.

Mark Mary C. Orestor was trunsferred from Training Section to Employed from Training Section to Employed April 21. Tr. C. M. Cherchy the is with American Cyanamide at Idaho Falls paid the serior contains of the training entire Tr. C. M. Clerchy the is with merican Cyanomide at Idaho Falls paid the training activity of the review some of the training activity of the review some of the R. E. Curtis of our training activity of the received by R. E. Curtis of the training activity of the received by R. E. Curtis of the training activity of the received by R. E. Curtis of the training activity of Turining Ecotion a visit on April 9 to review some of the training activity of our subsequently, a request was received by R. E. Curtis of our guarford works. Subsequently, a man as Training Supervisor for that location for a man as Training Supervisor for that location for a man as Training Supervisor. t werford works. Subsceptently, a request was received by R. E. Curtis of our for that location for a men as Training Supervisor for that location for a men as Training Supervisor time.

Tochrical Procurement Section for a men as available at this time.

Technical Procurement Section for a men as Training Supervisor for that time. They were advised that none are available at this time.

K-14

September 1 Market 1 Mar

#### PUBLIC INFORMATION

A total of 60 releases were distributed during the month. Of these, 26 were sent to the "local list" and seven to the "daily list". Twenty-two sets of photos were distributed to the local newspapers. The total also includes releases concerning new employees hired.

Twelve recreation stories and photos were sent to the local newspapers during the month.

Special requests were received and answered from the TRI-CITY HERALD concerning the library cooking contest, isolation pay negotiations, and commercial and non-commercial construction.

The COLUMBIA BASIN NEWS requested and received answers to questions concerning present isolation pay, bus fares, and current employment activities.

Arrangements were made for release of information about injuries to construction employees by the AEC.

"30 for the Month" was written and distributed. This issue summarized public relations activities for the months of January, February, and March.

Five photos were given to Mr. Jacobson, SEATTLE POST INTELLIGENCER, showing plant and community views.

Publicity plans were made with Librarian Doris Roberts for the observance of the Richland Public Library's first birthday. News stories and pictures were released to local media.

A tour of the tree-planting area was made and a seven-page story written for future publication.

A letter was sent to R. P. Plac in New York enclosing requested material to be sent to a correspondent in Zurich, Switzerland, about the operation of Hanford Works.

Two stories for the General Electric publication "Adventures Ahead", were written and submitted for publication in the July-August issue of the company magazine.

Information was sent to Paul Deutschman at the University of Oregon, concerning community divisions' staff, to be used in his thesis.

The News Bureau Supervisor spent one day at the State College of Washington recruiting publicity writers for Public Relations.

The April Community Newsletter was mailed to community leaders in Richland, and for the first time to ministers and school officials in Pasco and Kennewick.

The mailings to community leaders program was expanded to include educators and clergymen in Pasco and Kennewick. Businessmen will be added to the list in the near future.

Production of a housing booklet for residents that would define the policies governing the occupation and maintenance of Richland houses was discussed with the Tenant Relations Supervisor who reported that production of such a booklet is under consideration.

A total of 20 papers were submitted for clearance during the month. These were, in part, papers to be presented to annual spring meetings of various technical societies, and papers for publication.

The following presentations, in which Public Relations assisted, were given during the month: "Radiotoxicological Research at Hanford Works", by Dr. Leo K. Bustad, to the 4th Annual Conference for Veterinarians, Pullman, Washington, April 10; "Possible Modes of Action of Antibiotics", by Dr. G. N. Smith, to the National meeting of the American Bacteriology Society, Boston, Mass., April 28, 1952.

New cards were made for the large HOBSO board in preparation for the Department Manager's address to the Walla Walla Kiwanis Club, May 7.

A monthly civil defense newsletter was readied for production. It will concern local, state, and national civil defense matters, and will be distributed to all CD workers in Richland and North Richland.

The State Civil Defense Director was invited to visit Richland, June 4, and inspect the community's CD facilities. The invitation was made at the request of Hanford District Civil Defense.

A civil defense radio program centered around a panel discussion of biological warfare was written, produced, and broadcast over a local radio station.

A CD recruiting advertisement that urged residents to volunteer as block wardens was prepared and published in the Works NEWS.

CD films available for showing were listed in a letter sent to all clubs and organizations in Richland.

Civil defense news stories and pictures released to local newspapers concerned the results of a "yellow alert" test; completion of a survey to determine the best shelter locations in Richland and N. Richland buildings; presentation to schools of CD directories that spot safe and unsafe shelter areas in the schools; a meeting to discuss county mutual aid plans; shelter in the basement of a local home; Richland and N. Richland wardens; a biological warfare display being exhibited in the community; and the Richland Campfire Girls' contribution to the civil defense program.

CD movies were shown to 1797 members of community clubs and organizations and 147 G-E employees.

Tours of the CD Control Center were completed by 70 people.

The Hanford District Civil Defense map was revised.

An educational film, "They Shall Not Perish," designed to prepare the public for civil defense participation and to familiarize them with what is being set up here at Hanford, was produced at the request of Hanford District Civil Defense.

A montage warden Service map containing photos of all District Wardens was developed, photographed and printed for distribution to all clubs and groups.

Eleven CD warden instructional and information talks were given by the Chief Warden during the month. Each talk was accompanied by a showing of one or more Civil Defense films. Included in the speeches given was one to the Rotary Club in Pasco, one to the warden Group in Kennswick, and on one night five C.D. headquarters in Richland schools. In addition, a meeting with the District No. 4 Warden, and his zone wardens, was held in the control center.

The material for the training program to be given to all CD Wardens was assembled, and delivered to Training for their use in developing the Warden Training Program.

The warden Service roster is approximately 60% complete.

#### PHOTOGRAPHIC SERVICES

A total of 6,782 prints were produced during the month. Of the total prints produced, 5,098 were for employee identification and area admittance badges.

Twenty-one hundred feet of classified motion picture film was processed for the Technical Section. This film was taken to Seattle by a member of Photographic Services for processing in the laboratories of a commercial motion picture firm.

Photographs were made of a large number of special instruments that were damaged in shipment to aid in the recovery of large sums of money for the project. Photographs will be proof of the condition in which the equipment arrived on the project.

Preparations were made this month to start the filming of a motion picture film for Pile Technology.

To improve the quality of photographs and to aid in the lay-out and handling of a large number of photographs, a print straightner has been added to the equipment of Photographic Services.

Fifty-six requests for the use of projectors were filled. This is to include 17 MM motion picture, 35 MM slide and  $3\frac{1}{2}$  x 4" slide machines.

#### PROGRAM DEVELOPMENT

The Kadlec Hospital Annual Open House (May 7) was promoted through a news story to the local news media and the works NEWS; two photographs with captions to local papers; 12 photographs with captions to the Works NEWS -- including one double-page photo layout and one front page photo; an office letter to all supervisors and a letter to Richland through leaders; posters calling attention to the Open House displayed throughout the community, and two display-type posters to call attention to visitor control leaflets on display during the Open House.

A total of thirteen G-E and University of Washington Educational films were booked for plant and community showings during the month. These were, in part, used for training purposes by the Procedures Analysis Group, and by Civil Defense and local service organizations. An A.E.C. procured film was shown to a luncheon meeting of the Richland Rotary Club.

Five 15-minute panel question sessions of the Hanford Works Science Forum were tape recorded. Arrangements have been made with several people who will act as guest speakers on the program and the series will be presented in the form of half-hour broadcasts. Station KWIE has accepted the series for weekly broadcast.

Two radio plays were recorded for Recreation and Civil Affairs Unit, Youth Council and Richland Children's Theater. Opening and closing announcements, musical introductions and bridges, and sound-effects were dubbed in by this Section.

A three-minute narration explaining some of the functions of Civil Defense was recorded on the Saf-T-Vox. The Saf-T-Vox was installed in the Civil Defense Control Center and played back for those participating in two community tours.

"What's the Idea", to promote interest in, and to stimulate participation in the Suggestion System, was produced at the request of the Hanford Works Suggestion System.

Work on the Manufacturing Department, Reactor Section, motion picture, "Radiation Hazards Control", is going forward. Work script has been completed and photography is being scheduled. The basic story, written by a member of this Section, has been accepted by the Manufacturing Department.

Assistance was given a Seattle television station in their sound-motion picture production on industry in the State of Washington being prepared for a State bank having a local branch in Richland. Photography included local sequence of business and community leaders.

The Works NEWS has given all information possible to employees concerning the coming survey on the proposed sale of homes. Pictures and news stories describing all that will be involved have been published through direct cooperation with the Bureau of Census. Information has been gathered by personal contact with Bureau representatives.

Red Feather agencies have received promotion regularly to show employees the varied activities of these groups and the progress they are making.

Easter Seal promotion in the Works NEWS in two different news stories reportedly helped attain the goal. Special emphasis was given to the primary needs for the money locally.

The Cancer Drive in the plant and activities in the community to raise funds were publicized through news stories and pictures during the month.

The Suggestion System was publicized through a full-page feature article, and a general news story on success of the system throughout the entire Company for the past year. Women who received large awards for their suggestions were featured.

Editorial treatment was given to the Safety story on the front page to acquaint employees with the dangerous increase in injuries.

A map of the community was run to acquaint people with the change in trash and garbage pick-up schedules during the summer months. Zones and times of pick-ups were shown.

Publicity calling attention to the weekly program "The Story of Empire County" continued with a news story in each issue of the Works NEWS.

The visit to Richland and North Richland of the Central Washington Chest X-ray Unit was publicized through photographs, news releases, and an editorial cartoon.

Three women's pages and one full page feature about the YWCA were prepared for the Works NEWS during the month of April. One hundred free patterns were distributed to readers as a result of offers made in the April 4 Women's Page.

The membership drive of the G. E. Women's Club and a write-up on purposes of the club appeared in the April 18 women's page. A full page on the YWCA also appeared April 18.

An information release time-table for promotion of the employee services fund was drawn up in cooperation with Employee Services and an employee newsletter was prepared for release.

The monthly health bulletin for May "Know Your Community Hospital" was so written that it could double as a give-away leaflet at the Open House, and extra copies were ordered for that purpose.

Current "take" figures on the information rack service are as follows: Edison and Electricity, 908 copies; Romance of Electricity, 719; Adventures Inside the Atom, 1284; Adventures in Electricity No. 2, 1373; Adventures Into the Past, 870 and Steinmetz, Lattar Day Vulcan, 629 copies.

The poster service installed G-E Photo News Service posters regularly in all areas, placed a new AEC property management poster throughout the plant, serviced suggestion boxes, and put up Kadlec Hospital Open House posters throughout the plant and community. Fifteen additional frames for use in displaying Sheldon-Claire posters have been constructed and the complete supply of Sheldon-Claire posters have been constructed and the complete supply of posters for the next 40 weeks have been received.

Two new presentations of the Fublic Health series of "Classes for Expectant Parents" required a reprinting of the informational leaflet. A news story on this subject was released to all local news media.

1192247

An eight-page prospectus outlining the Industrial Medical In-Plant training program was produced at the request of the Medical Department.

Four layouts, one for a six-page Industrial Physicians In-Plant Training Program, two for Health Bulletins, and one double-page photo layout for the Works NEWS, were completed.

Finished art work for the publication, "1951 at Hanford Works", included cover, two title pages, table of contents and a map of Hanford Works.

Two illustrations were completed for Health Bulletins and for the Civil Defense sound slide film.

Six charts were designed for the publication, "1951 at Hanford Works".

Three handmade posters for Kadlec Hospital were completed.

Two signs for the G-E Women's Club were completed at the request of the steering committee of this newly-organized club.

Three visualizers were completed for the training section.

One editorial cartoon was completed for the Works NEWS.

See Statistical report of Photographic Services attached.

See Space report of News Bureau attached.

EWSPAPER SPACE REPORT

March, 1,52

As compiled from the nucleonics Division News sureau clipping files

SUBJECT	NEWSPAPER	COL IN.	<u>-dotos</u>
Plant General	Walla Walla Union Bulletin	142	
	Seattle Post Intelligencer	3 <del>½</del>	
	Seattle Times	1	
	Tri-City Herald	12	
	Columbia Basin News	12	
	East Oregonian	2	
	Oregon Journal	5	
	Bremerton Sun	<u>1</u>	-
	Medford Mail Tribune	1	
	Portland Journal of Commerce	1	
	Everett Herald	2	·
	American Bulletin	2	
Plant Safety	Columbia Basin News	ą	
•	Tri-City Herald	4,	
	. Walla Walla Union Bulletin	12	
Civil Defense	Walla Walla Union Bulletin	6 <del>2</del>	
	Columbia Basin News	21,	1
	Tri-City Herald	23 <del>½</del>	3
	Oregon Journal	- 1	1
	Yakima Herald	2 <del>1</del>	
Community General	Tri-City Herald	6 <del>1</del>	
	Columbia Basin News	14물	
Recreation	Tri-City Herald	<b>2</b> 8	3
	Columbia Basin News	111	
	TOTAL	134	8

Hanford Works Photo House Month of April, 1952

Month of April, 1952	2 x 2	2 x 4	5 <b>x</b> 7	8 <b>x</b> 10	Neg.	3 <del>2</del> x 4	Develop- ment	Color Slides	Exposures
CONTUNITY REAL ESTATE &									
SERVICES Fire			20		16				
Parks & Recreation			15		10				
Políce			30	18	14				
Municipal			. •	68	4	•			
EMPLOYEE & PUBLIC RELATIONS									
Employment	590			_	213				
News Bureau			199	82	98				
Special Programs			59	7	29			101	• .
Radio & Special Events			<b>2</b> 9	2	<b>2</b> 8 8			191	
Training Works NEWS			158	10 4	9 <b>5</b>				
			1)0	7	フノ				
NGINEERING			10	10	2	*			
Construction Design & Construction			12	12 54	3				
Engineers			124	120	36				
Pile Technology			<b>-</b>	236	59	24	Color 6		
EDICAL			43	8	18		•		18 .
			73	J	10				10
ANUFACTURING Plant Engineers				55	29				
Reactor Section			7	22	29				
Radiation Monitoring			'	23	25				
ADIOLOGICAL SCIENCES									
Survey			2		2				
Instrument			-	22	11				
Records and Standards				72	45	13			
Bidogy Section		•		2	ź	98			
TILITIES & GENERAL SERVICES	5								
Electrical Distribution				4					
Finance				70	16				
Security	804	370	)4						•
ISCELLANEOUS		1							
ivil Defense			26		8				
AEC Safety			7	65					
F. B. I.			7	12					
TOTAL	1394	370	738	946	536	135	6	191	18
	Febru	Lry,	1952		M	arch,	1952		1952
Total Prints	5	902			_	557	3	6782	2
Total Negatives		798				70		530	
Total Assignments		113				1.5	Ō	140	· .

#### Union Relations

UNION RELATIONS - OPERATING PERSONNEL

The Company was advised on April 4, that Laboratory Assistants and other weekly paid laboratory workers had filed a petition for representation election with the National Labor Relations Board. This case was identified as Case No. 19-RC-1051. The Company informed the NLHB by letter dated April 22, that the petition should be withdrawn because the unit designated was not appropriate. The Board was referred to a similar petition which had been filed by this same group of employees approximately 18 months ago which was dismissed for the same reason. On May 1, the Board advised the Company that the petition in this instance was withdrawn without prejudice.

The NIRB advised the Company that a petition has been filed by certain personnel assigned to the North Richland Powerhouse who are seeking a representation election. The Company advised the Board that, in all probability, the North Richland Powerhouse is to be turned over to the U.S. Army on or about July 1, 1952, and for that reason an election at this time seems inappropriate. Of major significance, too, is the fact that employees at that location have been offered similar jobs within the HAMTC bargaining unit and if they accept such offers, they will automatically become part of that unit. By monthend, the Board had not indicated its position on this matter.

The four local unions on April 2, accepted the Company's offer of an additional wage adjustment based on an increase in the cost of living, if any, between the period September 15, 1951, and March 15, 1952.

The Company and union representatives met several times during the month in discussions on the isolation pay question. An agreement was reached on April 29, at which time the parties approved an adjustment in isolation pay of 42 cents per day. Such an adjustment, of course, is contingent upon necessary approvals from the Wage Stabilization Board and the Atomic Energy Commission.

The NIRB conducted a hearing on April 24, relative to a petition for decertification which was initiated by certain members of the Hanford Guards Union, Local 21. The Company's position in this matter was one of absolute neutrality. However, the union contended that since its contract with the Company would not expire until August 3, 1952, the petition was premature and that the Board should not entertain such a petition at this time. The Board's decision on this issue has not been received.

The MIRB conducted a hearing on April 24 and 25, for the purpose of developing facts incidental to the discharge of (Bus Driver) on October 30, 1951. The Company discharged for fighting on the job but the CIO filed an unfair labor practice charge, contending that Brown was discharged because of his affiliation in and activities on behalf of the CIO. As a result of testimony given by numerous witnesses during the year, it appeared that the following facts were established beyond any question of doubt:

- The Company has a well-publicized rule against fighting on the job, the violation of which will result in discharge;
- committed an assault on a fellow worker which is in violation of this rule.

The Board's decision in this case is not expected for several weeks.

On April 24, 1952, the Company was advised of an unfair labor practice charge filed with the NIRB by

. The Company discharged Mr. for fighting on the job on January 9, 1952, but he contends that he was discharged because of his affiliation in and activities on behalf of the CIO. The Company has in its files statements from witnesses to this incident, as well as an admission from that he pushed or shoved in anger a fellow employee. The Company denies any knowledge of CIO affiliation other than as described by him in his complaint filed with the Board.

Richland and North Richland Firemen on April 23, accepted the Company's offer of double time pay for work performed on any of the seven recognized holidays. This provision is being made retroactive to December 1, 1951, which is the date that this policy became effective for exempt personnel at Hanford Works.

Status of Grievances

Grievance Statistics:

1952 Unit 1

	Unit	Non-Unit
Received this month	43	2
Received this year	101	4
Settled at Step I this month	15	i
Settled at Step I this year	43	2
Pending settlement at Step I at end of month	2	2 .
Settled at Step II this month	<b>J</b> ‡	0
Settled at Step II this year	22	0
Pending settlement at Step II at end of month	102*	0
Pending settlement by arbitration	5**	0
Total number pending settlement	109	2

<sup>\*</sup>Includes sixty grievances received prior to January 1, 1952, but not processed by Union.

# Analysis of Grievances Received this Month

Department	Subject	Unit	Non-Unit	Total
Manufacturing Department Reactor Section	Jurisdiction Health,Safety,Sani. Wage Rates	10 1 0	0 0 1	12

K-24

<sup>\*\*</sup>Includes four grievances received prior to January 1, 1952, which are pending further action by Union.

Department	Subject	Unit	Non-Unit	Total
Manufacturing Department Separations Section	Wage Rates Jurisdiction Sick Leave Health, Safety, Sani. Overtime Rates Subject not covered	5 5 1 1 2	0 0	
Metal Preparation Section  Total for Department	by contract Discrimination Jurisdiction Overtime Rates Health, Safety, Sani.	1 1 2 3 33	0 0 0 0 0	15 7 34
Utilities and General Services Des Transportation Section  Purchasing & Stores Section Plant Security & Serv. Statistical & Computing Serv. Total for Department	pt. Overtime Rates Jurisdiction Health, Safety, Sani. Overtime Wage Rates	1 2 1 0 0	0 0 0 0 1 0	1 1
Community, Real Estate & Services 700-1100 Area Serv. Section  Community Real Estate Section  Total for Department	Wage Rates Jurisdiction	1 1 2 4	0 0 0	2 2
Engineering Department Technical Section	Jurisdiction	1	0	1
Medical Department Law Department Financial Department Employee and Public Relations Dep Radiological Sciences Department	partment	0 0 0 0	0 0 0 0	
GRAND TOTAL		43	2	45
	Wage Rates Health, Safety, Sani Sick Leave Overtime Rates Jurisdiction Discrimination Subject not covered		ract	8 6 1 6 22 1
		To	tal	45

Two meetings were held during the month for the purpose of processing grievances at the Step II level.

#### CONSTRUCTION LIAISON

The Davis Panel has recommended that Boilermaker Locals No.'s 104 and 541 continue with the isolation pay arrangement in effect on the Project in lieu of the travel and subsistence provided in the Seven Western States Agreement, and further, that in view of the four and one-half years of uniform operation under the Master Agreement, they did not recommend a change in the prevailing work pattern. The Union has not accepted the recommendation or signed a new Schedule "A".

The Teamsters remained on the job during the month in spite of the failure of the National Joint Board to adjudicate the jurisdictional dispute with the Plumbers which created two work stoppages in March. Both Atkinson-Jones and Urban, Smyth and Warren have been requested to submit detailed descriptions of past and present practices relative to the loading and unloading of piping materials on the Project to the National Joint Board. John Dunlop, Chairman, has promised a decision at the next meeting of the Board.

At the request of the Atomic Energy Commission, representatives of active and prospective construction contractors met in Mr. Shaw's office on April 16, for the purpose of exploring the possibility of reactivating a Project Negotiating Committee, with an immediate goal of negotiating a revised Master Agreement for application during the three and one-half year period anticipated for Program X. General concurrence was received from the contractors and on April 17, they met with representatives of labor in the 712A Rutment. The Unions had selected a Megotiating Committee which purportedly represented all crafts with the exception of Plumbers, Electricians and Asbestos Workers and came prepared with a proposed agreement acceptable to these crafts. The contractors in caucus selected a tentative Negotiating Committee composed of representatives of Atkinson-Jones, Hoffman, Sound, Erwen and Terteling, with floating alternates to include representatives from Morrison-Knudsen, Utah Construction, a mechanical subcontractor (unnamed) and an electrical contractor (unnamed). The Committee agreed to draw up a proposed Agreement for presentation to the Unions several days prior to the next meeting, which was to be held on call. On April 29, representatives of AJ, Sound, Hoffman, Erwen, Terteling and M-K met and drew up such an Agreement. It is expected that negotiations with the Unions will be resumed during the week of May 12.

It has been indicated for some time that the men in the field would refuse to handle the cross header piping fabricated by the American Boiler Works in Everett for use on the face and rear of the C Pile, because the work was not performed by UA members in an Everett shop. The material for this installation has arrived on the Project and is scheduled for use the first week in May. Discussions with Bilderback (UA General Organizer) have been held in this regard, but it is our understanding that the final decision rests with Larish who will return to Pasco to decide the matter.

AJ has agreed to an arbitration with the Office Workers Union in the matter of the downward reclassification of a material coordinator (also Steward) in the White Bluffs Area. The Federal Mediation and Conciliation Service submitted the names of five men to the parties for their consideration in the selection of an arbitrator in this dispute. Failing to agree on any individual on the list, the parties on April 29, jointly requested the Service to appoint an impartial chairman to act as arbitrator.

Substantial agreement was reached at a meeting in Pasco on April 9, for the purpose of merging the Tri-City Contractors Association and the Tri-City Construction Council. Plans include the later affiliation of other employer groups such as the Painting and Decorating Contractors Association.

The National Labor Relations Board has advised that the petition filed by the Technical Engineers and Architects Association regarding a representation election, for a unit to consist of all engineering employees within the classifications of construction engineers, chiefs of party, safety engineers, designers and office engineers currently on AJ exempt roll, has been withdrawn without prejudice.

V. S. Jenkins has been notified by Thomas P. Graham, Regional Director, NLRB, that the unfair labor practice charge filed in Case No. 19-CA-605 has been withdrawn without prejudice.

Construction returned to a five-day-week schedule on April 14, 1952.

#### Negotiations:

Carpenters--Agreement reached on wage increases of  $8\frac{1}{2}$  cents per hour (\$2.42\frac{1}{2}\$ to \$2.51) effective the next full payroll period beginning on or after March 19, 1952, subject to Construction Industry Stabilization Commission approval.

Sheet Metal Workers--Agreement reached on a revised Schedule "A", including a compromise vacation plan providing that a six-day vacation be allowed when the vacation is earned on a six-day schedule and a five-day vacation when earned on a five-day schedule. A Health and Welfare Plan was also included.

Painters--Substantial agreement reached on a requested six cents an hour increase plus an undetermined amount that is expected to result from current negotiations with other contractors in the area. Further meetings are scheduled.

Ironworkers--A 15-cent increase (\$2.50 to \$2.65) effective January 1, 1952 was granted in April 9 negotiations.

Cement Masons--Revised Schedule provides for a wage increase of 17 cents per hour (\$2.40 to \$2.57) effective January 1, 1952, subject to CISC approval.

#### WAGE RATES

Revision of Reimbursement Authorization No. 125 was obtained from the Atomic Energy Commission to change the rate range of the Supervisor-in-Training classification. In the future, all individuals hired in as Supervisors-in-Training will be assigned a base rate and, in addition, will receive isolation pay and shift differential when applicable.

Tentative reimbursement authorization approval was given by the Atomic Energy Commission on our request for the extension of the nonexempt overtime pay practices to individuals classified as Supervisors-in-Training. An application concerning this modification of our overtime pay policy for Supervisors-in-Training is now pending before the Wage Stabilization Board.

On April 25, 1952, the Wage Stabilization Board approved our petition, submitted on April 16, for the payment of a wage adjustment to Evelyn C. Feisthamel, a stenographer in the Design Section, for the correction of an improper hiring rate.

Wage Stabilization Board approval was received on our petition for the payment of a wage adjustment to Joseph R. Brabo, a Fireman (Area), for the correction of an improper hiring rate.

A change, which went into effect immediately, was made in the transfer rules for the downgrading of non-unit employees. A request to revise Reimbursement Authorization No. 64 relative to this change in the non-unit downgrade rules was submitted to the Atomic Energy Commission. This submission was merely in the form of a notification to revise Reimbursement Authorization No. 64.

Reimbursement authorization was received from the Atomic Energy Commission for the establishment of two new classifications of "Executive Secretary, Grade 21" and "Executive Secretary, Grade 19", both of which were placed in effect.

A letter was received from Mr. H. E. Thurston, Chief of Organization and Personnel Division, Atomic Energy Commission, authorizing payment of a special rate to Jeanne Antoinette Weller, Publicity Writer, who was transferred from the Schenectady office to the Hanford Works at her existing rate of pay.

A request was submitted to the Atomic Energy Commission to revise Reimbursement Authorization No. 89 concerning a change in the method of payment to Firemen (Non-Area) for work performed on an observed holiday when it falls on a scheduled day of work.

During the month of April, joint applications in connection with the March 15, 1952, cost-of-living adjustment, signed by the officials of the Hanford Works Unions, were forwarded to the General Electric Company office in New York.

A reimbursement authorization request was submitted to the Atomic Energy Commission for the establishment of a new classification of "Public Relations Writer."

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#### Life Insurance:

Code information which is known only to Home Office Life Underwriters Association has been furnished 64 insurance companies and investigation agencies during the month of April, 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:

	March, 1952	April, 1952	Total Since Sept., 1946
Claims reported to the Department of Labor and Industries	272	Long Forms Short Forms 216 265	6532
Claims reported to Travelers Insurance Co.	12	*6	613

<sup>\*</sup>Of the claims reported to Travelers Insurance Company during the month, one was property damage and four were bodily injury, one claim was for both property damage and bodily injury.

#### COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT SUMMARY

#### **APRIL** - 1952

#### ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg. of Month	End of Month
Administration	18	21
Community Services Section - (Total 210)		
Public Works	84	91
Recreation & Civic Affairs	9	9
Library	10	9
Police (Richland)	41	42
Fire (Richland)	50	49
Engineering	10	10
Community Real Estate Section - (Total 189)	•	:
Housing and Maintenance	184	177
Commercial Property	12	12
700-1100-3000 Area Services Section - (Total 113)		
700-1100 Maintenance	60	58
Patrol (North Richland)	22	22
Fire (North Richland)	33	
,	<u>33</u> 533	<u>33</u> 533

There was no change in the grand total of the Community Department during the month of April, 1952. The increase of three employees in Administration actually constitutes the employees gained by our department assuming the landlord responsibilities of North Richland Commercial Facilities.

#### GENERAL

The Community Council was conducted on a tour of municipal facilities on April 17, 1952.

Effective April 1, 1952, the North Richland Commercial Facilities landlord responsibilities were assigned to the Community Real Estate and Services Department - 700-1100-3000 Area Services Section.

Total housing applications pending - 666.

The following establishments opened for business in the month of April as sublessees in the following buildings:

C. D. JOSEPH BLDG. #2
Pleiss-Davis, Inc.
Uptown Barber Shop

VIRGIL O. McVICKER'S BLDG. #2 Pink Cameo

AUTOMATIC LAUNDRY CO.'S BLDG. #2
Newman's Bakery
Stanfield's Florists

C. D. JOSEPH'S BLDG. #1

# CONTRACT SECTION

ontract iber	Contractor		Project Number
G-390	D&H Paving Company	1951 Street Improvements, Parking Lot at the Mart (south) and Campbells' Construction of Sidewalk to Jason Lee School; Extension of Parking Lot Dorm. W-20. Final estimate submitted to AEC for payment 4-21-52.	0-L26 L-575 L-589 K-611
AT-45(01)-608	Inc.	Site Grading Irrigation, Landscaping Construction of Rest Room, Sewer Lines, Water Lines and Shelterbelt. Project C-408 and L-262 physically completed 4-20-52. Contract is approximately 48% complete.	C-425 C-408 L-262 K-562
AT-(45-1)-613	Anderson Brothers, Inc.	Exterior Painting 329 Conventional Houses, Two Tract Houses and Three Non-Commercial Buildings. Contractor started work 4-7-52. Contract modified to include two coats of spray paint.	s-909 K-918
Invitation to Bid. AT-(45-1)-617	Associated Engineers, Inc.	Additional Fire Protection Desert Inn and Richland Theater; Fire Hydrant Installation Birch Avenue; Sewer Line Installation Along Gillespie from Duane Avenue to Gillespie Property Line. Bid opening held 4-14-52 and contract awarded to Associated Engineers, Inc.	
Invitation to Bid. AT-(45-1)-618	Sprague McDowell Co.	Site Grading, Top Soiling, Lawn Seeding and Related Work. Bid opening held 4-3-52. Contract awarded to Sprague McDowell Co. Notice to Proceed issued 4-24-52. Contractor starte construction 4-29-52.	!
Invitation to Bid. AT-(45-1)-619	va som on one	Elimination of Odors at Sewage Lift Station. Final specifications and drawings completed. Invitation of bids will be delayed until AEC approval of additional funds is obtained.	1-608
Invitation to Bid AT-(45-1)-620	Cecil C. Hill	Repair of Fire Damaged Prefab and Repair of Damaged "A" Type House. Bid opening held 4-15-52. Contract awarded to Cecil C. Hill. Notice to Proceed issued 5-1-52. Contractor Started construction May 5, 1952.	s-922 L-921

Payments to contractors during the month totalled \$18,710.61.

#### COMMUNITY SERVICES SECTION

#### SUMMARY

APRIL, 1952

# ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH			OF MONTH
	Exempt	Non-Exempt	Exempt	Non-Exempt
ENGINEERING	7	· 3	7	3
FIRE	50	0	49	0
LIBRARY	4	6	4	5
POLICE	16	25	16	26
PUBLIC WORKS	15	69	15	76
RECREATION & CIVIC AFFAIRS	5_	14	5_	4.
	97	107	96	114

The Community Council was conducted on a tour of municipal facilities on April 17, 1952. The itinerary for the day was as follows:

9: - 10: AM	Discussion of tour and review of Community Services organization.	2:00 - 2:25 PM	Civil Defense Control Center
10: - 10:20	Community House	2:25 - 2:35	Sewage Lift Station
10:20 - 10:30	Wellsian Lake & Columbia	2:35 - 2:50	Columbia Well Field
	Playfield	2:50 - 3:05	North Richland Well Fi
10:30 - 10:40	Fire House #2	3:05 - 3:15	Penstock - Duke Well Fi
10:40 - 11:00	Fire House #1	3:30 - 4:00	Sewage Treatment Plant
11:00 - 11:15	Library		•
11:15 - 12 Noon	Police Headquarters	4:00 - 4:15	Sanitary Fill
	102200 20004	4:15 - 4:30	1182 Building
12 Noon	Lunch - Desert Inn	4:30 - 5:00	W-20 Building

# COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT PUBLIC WORKS UNIT APRIL 30, 1952

#### ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Employees Beginning of Month	15	69
Transfers In	·	11
Transfers Out	<b></b> ,	5
New Employees		. 3
Terminations		2
Total - End of Month	15	76

#### SANITATION

Total weight of garbage and trash collected during April was 1253 tons. The seasonal change from once weekly to twice weekly collection schedules in the residential areas will be effected on May 5. A notice of this change has been publicized.

#### ROADS AND STREETS

Patching of pavement breaks which occurred during the winter months has been continued and the majority of these holes have now been repaired.

Grading and clearing of gravel gutters is in process so that excess irrigation water which drains to these gutters will flow to disposal points.

Grading and repair of approximately five miles of streets which are scheduled for seal-coat application is progressing. It is anticipated that the seal-coat work will commence in June.

Routine maintenance of streets and street drainage systems was continued.

#### PUBLIC GROUNDS MAINTENANCE

The unusually dry weather during April caused lawn grass to remain dormant unless irrigation was carried out. A comparison between residence lawns which were under irrigation and public grounds which were not irrigated led to some criticism by those who believed the public grounds grass was being damaged. However, a concentrated effort has been made to bring the grounds into good condition, and by the end of April all

### Community Services - Public Works Unit

#### PUBLIC GROUNDS MAINTENANCE ( CONTINUED )

grassed areas were in fair shape. The addition of seasonal employees during May will solve this temporary problem.

All public grounds have been sprayed with 2-4-D as part of a program designed to control and minimize the growth of dandelions.

Mowing of grassed areas was started in April. The first cutting required considerable time due to the trash that accumulated during the winter months.

#### DOMESTIC WATER

Normal operations and maintenance were continued and the average daily water consumption for April was 12.18 million gallons. Maximum daily water consumption of the month occurred on the 24th when 16.44 million gallons were used.

Production and consumption recordings for April are as follows:

#### Domestic Water

	Well Production Willion Gallons	Avg. Daily Production	Total Consumption <u>Million Gallons</u>	Avg. Daily Consumption
Richland N. Richland	140.8300 129.9310 95.2591	4.6943 4.3310 3.1753	275.0306 62.5825	9.1677 2.0861
Golumbia Field 300 Area Total	366.0201	12.2006	27.8783 365.4914	<u>0.9293</u> 12.1831

#### SEWERAGE

A stoppage occurred in the 8" sewer main on Lee Boulevard which serves the Marcus Whitman School. During the opening process a tool became wedged in the line necessitating excavation of the line for removal of the tool and a considerable quantity of stones.

Normal operations and maintenance of the collection system and treatment plants were continued and average daily flow through the plants was 2.6 million gallons.

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#### Community Services - Public Works Unit

#### SEWERAGE (CONTINUED)

Flow records for April are as follows:

#### Sewerage

	Total Sewage Flow Million Gallons	Average Daily Flow Million G. P. D.	Average Rate of Flow Gals. per Min.
Plant #1	18.390	0.613	426
Plant #2	<u> 59.737</u>	1.991	1383
Total	78.127	2.604	1809

#### IRRIGATION SYSTEM

The six irrigation pump houses and distribution grids were in operation by the middle of April. As usual, extensive repairs to lines, risers and valves was necessary prior to turning water into the systems.

Approximately 600' of deteriorated gravity flow main on Snyder Road, bewteen Davison and Burlin Roads, was replaced through installation of 6" invasion pipe.

# RECREATION AND CIVIC AFFAIRS UNIT MONTHLY REPORT

# April, 1952

# ORGANIZATION AND PERSONNEL

	Examp t	Non-Examp
Beginning of Month	5	4.
New Hires	0	0,
Terminations	0	0
Transfers - IN	0	0
OUT	_ 0_	0
	<del>-5</del>	140

#### SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of April 30, 1952:

Edministration	6
Principals & Supervisors	14
Clerical	214
Teachers	278
Health Indiometer	I
Cooks	47
Mursery School & Extended Day Care	11
Bus Drivers	1
Maintenance	9
Operations	46
Abor estram	7431

# CLUBS AND ORGANIZATIONS

As of April 30, 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	·	. <u>1</u>
Boy Scouts	-	1
Camp Fire Girls		1
Hi-Spot Club		2
Girl Scouts	•	. 2
Justice of the Peace		<u> </u>
Y.W.C.A.	•	2
Chamber of Commerce	ಎರ್ಎ ಕಟಕ ಬಳ	com <del>e de</del> la mai di sign
thanber of Commerce will wish to be the control of	ોલગ્રહ્માં જહે તે	Santa Comme

On April 26 and 27 the Boy Scouts of Richland held a Camporee on the Junior Riders Club site. Assistance was given the group by our Unit in arranging for the lean of a water truck to provide drinking water during the Camporee.

The Parks and Recreation Board held its regular monthly meeting on April 3, 1952 at the Community House. It was moved and seconded that the "Policies, Procedures, Regulations and Facility Rates for Community House" be adopted. It was moved and seconded that the Richland Yacht Club proposal, requesting the lease of an area extending from Falley Street (extended) north to Swift Boulevard along the Columbia River and extending 20 ft. west of existing fence along the east perimeter of Riverside Park, not be approved in its entirety. It was moved and seconded that the offer of the Richland Softball Association, to pay the Community Services Section \$250.00 for admission privileges at the Memorial Softball Field if permitted to charge .10 per child, .25 per adult and .50 per family ticket, be accepted. The next regular meeting of the Board is scheduled for May 8, 1952 in the Community House at 5:00 P.M.

The number and types of organizations presently served by the Recreation and Civic Effairs Unit include:

Business and Professional organizations	23
Churches and Church organizations	27
Civic organizations	19
Schools	13
	35
Fraternal organizations	42
Political Organizations	5
Recreation & Social Clubs - Klummi	25 5 3
Art, Music, Theatre	10
Bridge	` 3
Dance	5
Gerden	) 5 3
Hobby	10
Social	n
Sports	19
Veteran & Military organizations	19 14
Welfare Groups	7
Youth - Boy Scouts	20
Girl Scouts	49
Camp Fire Girls	36
Miscellaneous erganizations	15
	377
	711

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#### RECREATION

Two members of the Unit attended the Annual Northwest District Recreation Conference held at Rugene, Oregon on April 1, 1952.

On April 15, 1952 two members of the Unit spoke at a regular weekly meeting of the Rotary Club of Richland on Recreation problems and Little League Baseball activities.

The Annual Easter Egg Hunt sponsored by the Richland Riwsnis Club and directed by this Unit was held on Sunday, Aprill 13 at Riverside Park, with approximately 900 persons in attendance.

The Triple-O-League softball organizational meeting was held on Tuesday, April 22, at the Community House. The League is to be sponsored and operated again this year by this Unit.

The installation of bases on all major softball and baseball fields was completed on April 15, 1952.

On April 20, 1952 Wellsian Lake, which had been stocked with approximately 3,000 Trout, was opened for juvenile fishing. Approximately 2,000 children fished in the Lake the opening day. The Lake is to be open for juvenile fishing until the last of July, at which time the area will be stocked with Bass and Blue Gills. Fishing will then be prohibited in the area until the opening date of the 1953 fishing season.

Attendance figures for April, 1952, for the Athletic and Playground Program, sponsored by the Unit, are as follows:

·	Children	Edults	Totals
General attendance	6,320	2,510	8,830
Special Events - Participants	<b>350</b> <sup>∋</sup> 1	360	710
Spectators	<u>. 64</u>	116	<u> 180</u>
Totals for Month	6,734	2,986	9,720

Indoor to Date - 9,157 Outdoor to Date - 83,659

Organized groups and classes conducted during April by this Unit were as follows:

	Children	Adults	Totals
Easter Egg Hunt - April 13	350	540 12	890 12
Triple-O-League Meeting Wellsian Lake Opening - April 20 Total	2,000	2,000	4,000

#### COMMUNITY HOUSE

On April 1h, 1952, due to reorganization, the Community House Clerk was transferred to the Library for temporary assignment.

The U. S. Bureau of Census, which is conducting the survey on the Scurry Report, has been booked in the Community House Games Room until approximately May 13, 1952.

Attendance at the Community House for the month of April remained relatively high even though the majority of the programs have ceased until the opening of the Summer Program. The attendance for the month of April was 9,563.

A Community Council Tour was conducted by members of the Unit at Community House on April 17, 1952. Program supervisors of the Unit briefly described the operations and programs which are conducted year around. Individual brochures were prepared for each member of the Council.

Special Easter Programs were presented by the Hi Spot, Rec-a-teers, and the Servicemen's Club in the form of "Bunny Hops" and dances while the Senior Citizens of Richland had a card party. The Y.W.C.A. interest group had a mixer consisting of games, dancing, and a program.

Plans are being made by the Y.W.C.A. interest group to have a formal dance during the month of May.

The Craft Classes for the Fall and Winter season closed April 16, 1952, with a yearly attendance of 3,868 participants.

Attendance - Community House	Children	Adults	Total
General Attendance	4,774	5,371	10,145
Special Events - Participants	10	73	83
Spectators	17	616	633
Assisted Activities	89	2,346	2,435
Totals for Month	4,890	8,406	13,296
At End of Previous Month	59,156	48,095	107,251
Fiscal Year Totals to Date	64,046	56,501	120,547

Indoor to Date - 120,547

# RICHLAND PUBLIC LIBRARY

#### APRIL 1952

	The street of the second secon	he present footrom of the children to recommend ontestants ranged in assistant 7 to 35. Primes a	
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	Employees - Beginning of Month	to a fill the will medial early a 4 car \$ 1, 6.	_
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• ,	Transfers Out	and Domesta Grand (1976) a 1sa - Europain, "Labolitation Colored Color	. <u> </u>
	New Hires		
	Temainations	· · · · · · · · · · · · · · · · · · ·	
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CE	MERAL	en in the second of the second	
	•		
	<u>Girculation</u> :		
	Books	13,987 (Adult - 8,304; Juvenile - 5,683)	
	Magazines	44.5	
	Records	7/2	
`	Special Loans	30	
J	Interlibrary Loans	<b>(3</b>	
	Grand Total	15,207	
	Cooks acced this routh:	670 (adult - 202; Juvo ilo - 310)	
	Current Book Stock	19,775	
	Registration:		
	Adrit	208	
	Juvenile	66	
	Total	· 274	
	Total Registered Borrowers	9,774	
	Children's Story Hour Attendance	364 (Includes attendance at Cooking Cor and play put on by Children's Crea Branatics Class.)	ntesi ative

Le-l

The special feature of the children's program this month was the Cooking Contest. Contestants ranged in age from 7 to 15. Prizes were offered for the best entries in each of five classes—cookies, cupcakes, salads, breads and candies. The entries were in both junior (10 years and under) and senior (10 to 15 years) divisions. Prizes for blue ribbon winners in each class of each division were cookbooks. Prizes and souvenirs for other contestants were provided by donations of sample products, small bookbooks and pemphlets from commercial food manufacturers such as Hershey Chocolate, General Mills, Sun Maid Raisins, Centannial Flour, Kraft Cheese, Spreckle's Sugar, Leslie's Salt, Morton's Salt, Valley Evaporating Company, Picksweet and Standard Brands. It is interesting that all but one first prize in the junior division were awarded to boys. Judges for the contest were Mrs. Henry Thurston, Mrs. Helen Chapman, Mrs. Fred Clagett, and Mrs. Barbara Pederson. Also, special Easter story hours were given for pre-school children.

Because of additional duties, Rev. Uphoff resigned as chairman of the Library's American Heritage Committee and as discussion leader of the Wednesday night group of the Library's "What is the American Way?" discussion program. As a result Miss Lucile Lomen will act as discussion leader of both groups which have been combined to meet every other Tuesday. Although it was originally planned to discontinue the discussion groups for the summer months, quite a bit of interest has been shown by the participants in continuing. A decision will be made at the next meeting on May 13, 1952.

The Library finished its first year of operation on April 29, 1952. During this first year the Library's 9,774 registered borrowers had borrowed 184,565 books, magazines, records and pamphlets.

#### COMMUNITY SERVICES

#### RICHLAND POLICE DEPARTMENT

#### APRIL 1952

ORGANIZATION AND PERSONNEL	Exempt	Non-exempt
Employees - Beginning of Month	16	25
Transfers In	0	0
Transfers Out	0	0
New Hires	0	1
Terminations	0	0
Total - End of Month	16	26

#### GENERAL

The Police Department conducted the Community Council on a tour of our police facilities on April 17. The tour consisted of a brief inspection of the Court Room, communication system, traffic control facilities, records bureau, crime laboratory, etc., and concluded with a tour of the Richland Jail.

In conjunction with the schools' bicycle safety campaign for April, the Richland Police Department is sending to each house holder of Richland a letter relating the Washington State Code on bicycle riding. Lt. E. E. Miller, Traffic Control Officer, contributed to the success of this campaign by giving several lectures on safe bicycle riding, along with showing safety films at the various schools.

A large number of Traveler's Insurance pamphlets entitled "Lucky You" were received by this department and are being distributed to the public. Many are being distributed by our officers at the time of issuance of traffic citations or verbal warnings.

Three patrolmen assigned to straight days and one patrolman assigned to straight swing have been re-assigned, one to each of the four shifts. This brings our total for each shift up to five patrolmen, excluding supervision.

The Richland Police Department received 30 new trafficones during the month of April.

One group of Camp Fire girls, one Cub pack of Boy Scouts and one troop of Brownie Scouts were escorted through the police station during the month of April.

During the month, 99 letters of inquiry were received along with 1 request for assistance.

During the month of April, 27 prisoners were processed through the Richland Jail. Sixteen of these were from North Richland.

During the month, 13 gun registrations were recorded and 465 bicycle registrations recorded. The large increase in bicycle registrations during the month was due to the campaign during April to have every bicycle in the city registered.

A total of 393 police and traffic reports were processed through the records section of the police department, consisting of reports originating from both Richland and North Richland police departments.

#### FFIC

There were 22 reportable accidents this month in Richland. This is two more than the preceeding month and seven more than the same month last year. This brings the total accidents this year to 114 as compared to 76 for the same period last year or a 50% increase.

There were 6 persons injured in automobile accidents this month; the same number as were injured in April of last year. This brings the total injuries this year to 20 and 1 fatality, as compared to 22 persons injured during the same period last year.

Property damage resulting from accidents this month was \$4,570.00 or an average of \$207.73 as compared to last month's average of \$271.25.

Fourteen of the above accidents were investigated by members of the Richland Police Department, and these investigations resulted in warrants being issued against 10 drivers for traffic violations.

Driving violations which contributed to the 22 accidents this month were:

Failure to yield right-of-way	7	Improper passing	2
Following too closely	4	Inattention to driving	1
Negligent Driving	4	Improper backing	1
Reckless Driving	2		

mere were 104 crosswalks painted during the month. A sample kit containing 200 Dur-One markers was installed on 3 crosswalks at Goethals Drive and Knight Street. These
markers were installed by a factory representative. They seem to be superior to paint
as they are visible at a greater distance and should last about three to four years.

There were 12 new signs installed in the ranch house area, reading "Slow Dip Ahead."
The stop signs were reversed at Birch and Pullen to grant right-of-way to Pullen and reduce the speed at which cars on Birch might cross these gutter depressions. Two "Stop Ahead" signs were also installed as advanced warning of this change. Parking was restricted on Welsian Way adjacent to the Lake to provide a greater degree of safety to children fishing in this area. Parking was also restricted on Stevens south of the 700 area gate to provide better visibility for vehicles leaving the area at this location.

There were a total of 20 new traffic control signs installed this month and 34 parking signs. There were 5 traffic control signs renewed or replaced and 11 parking signs renewed or replaced. In addition, there were 23 signs of all types straightened as a result of damage by motor vehicles or construction equipment.

#### TRAINING

Due to a reorganization, no range training took place during this month. A shortage of ammunition also contributed to the slack in our range training.

#### ACTIVITIES AND SERVICES

	February	March	April
Doors and windows found open in facilities	55	53	127
Children lost or found	21	26	25
Dogs, cats reported lost or found	33	29	16
Dog, cat, loose stock complaints	26	29	28
Persons injured by dogs	7 ·	5	3
Bank escorts and details	2	0	0
Fires investigated	17	18	11
Miscellaneous escorts	13	19	. 8
Complaints investigated (no enforcement action).	15	12	66
Deaths reported	14.	0	1
Property lost or found	16	47	53
Records inquiries	110	115	110
Law enforcement agencies assisted	2	4	12
Private individuals assisted	2	11	37
Plant departments assisted	80	53	26
Emergency messages delivered	47	47	24
Street lights out reported to Electrical	98	65	<u>76</u>
Totals	548	533	623

# MONTHLY REPORT RICHLAND POLICE DEPARTMENT APRIL 1952

6. Larceny - Over \$50.00		OFFENSES	KNOWN	UNFOUNDED	CLEARED OTHER*	CLEAR ARREST
1. Mirder 2. Rape 3. Robbery 4. Aggravated Assault 5. Burglary - Break & Ent. 6. Larceny - Over \$50.00 5. 2 Larceny - Over \$50.00 5. 2 Bicycle Theft 23 7. Auto Theft 1  TOTAL PART I CASES 48 20  PART II 8. Other Assaults 9. Forgery & Counterfeit 10. Embezzlement & Fraud 11. Stollen Prop:Puy:Rec:Poss. 12. Weapons:Carrying:Poss. 13. Prostitution 14. Sex Offenses 15. Offense & Gentled Narcotics - Drug Laws 16. Liquor Laws 17. Liquor Laws 18. Disorderly Conduct 19. Disorderly Conduct 20. Vagrancy 21. Gambling 22. Driving Waits Thex. 22. Violation Rd. & Dr. Laws: Speeding 34. 32 Stop Sign 8 Right of Way 5 Negligent Driving 8 Right of Way 5 Negligent Driving 8 Right of Way 5 Negligent Driving 12. All Other Traffic Viol. 12. All Other Traffic Viol. 24. Parking 25. All Other Traffic Viol. 26. All Other Traffic Viol. 27. Vandalism 4 Dog Nuisance 2 Listurbance 4 Loss. Property 4 1 1 7 1 1 7 2 1 1 7 2 1 1 7 2 1 1 7 2 1 1 7 3 1 1 7 4 1 7 5 1 1 7 5 1 1 7 5 1 1 7 7 1 1 7	PART	I			•	
2. Rape 3. Robbery 4. Aggravated Assault 5. Burglary - Break & Ent. 2 6. Larceny - Over \$50.00 5 2 Larceny - Under \$50.00 17 1 Bicycle Theft 23 17 7. Auto Theft 1  TOTAL PART I CASES 48 20  PART II 8. Other Assaults 3 9. Forgery & Counterfeit 3 10. Embezglement & Fraud 11. Stolen Prop:Buy:Rec:Poss. 12. Weapons:Carrying:Poss. 13. Prostitution 11. Sex Offenses 3 15. Offense Ag.Fam.& Child Narcotics - Drug Laws 1. Liquor Laws 2 16. Disorderly Conduct 20. Vagrancy 1 21. Gambling 12. Drukenness 4 19. Disorderly Conduct 20. Vagrancy 1 22. Drukenness 4. Speeding 34. Stop Sign 21. Reckless Driving 8 Right of Way 5 Negligent Driving 21. Reckless Driving 21. Peckless Driving 22. Peckless Driving 23. Peckless Driving 24. Perkless Driving 25. All Other Traffic Viol. Perkless Driving 26. All Other Offenses:  Malicious Mischief 4. Perkless Property 2. Perwler 1. Driving 27. Suspicion 1.						
3. Robbery 4. Aggravated Assault 5. Burglary - Break & Ent. 2 6. Larceny - Over \$50.00 5 2 Larceny - Over \$50.00 17 1 Bicycle Theft 23 17 7. Auto Theft 1  TOTAL PART I CASES 48 20  PART II 8. Other Assaults 3 9. Forgery & Counterfeit 3 10. Embezzlement & Fraud 11. Stolen Prop:Buy:Rec:Poss. 12. Weapons:Carrying:Poss. 13. Prostitution 14. Set Offense & 3 15. Offense Ag.Fam. & Child Narcotics - Drug Lawe 15. Drunkenness 4 16. Liquor Laws 2 18. Drunkenness 4 19. Disorderly Conduct 20. Vagrancy 1 21. Gambing 22. Driving **Mire** Artes. 2 23. Violation Rd. & Dr. Lawe: Speeding 34 Reckless Driving 8 Right of Way 5 Negligent Driving 8 Right of Way 5 Negligent Driving 21 Reckless Equipment 11 Reckless Equipment 11 Liquor Laws 12 Liquor Laws 25 Right of Way 5 Negligent Driving 12 Reckless Driving 8 Right of Way 5 Negligent Driving 21 Liquor Laws 22 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Liquor Laws 43 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Liquor Laws 44 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 5 Negligent Driving 21 Reckless Driving 43 Right of Way 6 Right of Way 6 Right of Way 7 Right of Way 7 Right of Way 7 Right of Way 7 Right of Way 8 Right of Way 8 Right of Way 8 Right of Way 15 Right of Way 1						
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6. Larceny - Over \$50.00			2			1
Bicycle Theft						1
7. Auto Theft 1  TOTAL PART I CASES 48 20  PART II  8. Other Assaults 3 9. Forgery & Counterfeit 3 10. Embezzlement & Fraud 11. Stolen Prop:Buy:Rec:Poss. 12. Weapons:Carrying:Poss. 12. Weapons:Carrying:Poss. 13. Prostitution 14. Sex Offenses 3 15. Offense Ag.Fam. & Child Narcotics - Drug Laws 2 16. Drunkenness 4 17. Liquor Laws 2 18. Drunkenness 4 19. Disorderly Conduct 20. Vagrancy 1 21. Gambling 7 22. Driving Halfs intex. 2 23. Violation Rd. & Dr. Laws: Speeding 34 34 35 34 35 35 35 35 35 35 35 35 35 35 35 35 35		Larceny - Under \$50.00				1
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PART II  8. Other Assaults 9. Forgery & Counterfeit 10. Embezzlement & Fraud 11. Stolen Prop:Buy:Rec:Poss. 12. Weapons:Carrying:Poss. 13. Prostitution 14. Sex Offenses 15. Offenses 16. Offense & Fam. & Child		TOTAL PART I CASES	48		20	4
8. Other Assaults	PART					•
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Stolen Prop:Buy:Rec:Poss.	9•	Forgery & Counterfeit	3			3
12.   Weapons:Carrying:Poss.   13.   Prostitution   14.   Sex Offenses   3   3   15.   Offenses   3   16.   Offense   4g.Fam. & Child   Narcotics - Drug Laws   2   18.   Drunkenness   4   4   19.   Disorderly Conduct   20.   Vagrancy   1   21.   Gambling   Thick.   2   22.   Driving   Mail E   Thick.   2   23.   Violation Rd. & Dr. Laws:   Speeding   34   34   35   34   35   35   35   35	10.	Embezzlement & Fraud				
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23. Violation Rd. & Dr. Laws:     Speeding	22.	Driving While Intex.	2			. 2
Stop Sign	23.	Violation Rd. & Dr. Laws:				
Reckless Driving Right of Way Solution Negligent Driving Defective Equipment Supplies the street of Pers. Property Prowler Truancy Suspicion  8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Speeding				34
Right of Way  Negligent Driving Defective Equipment  24. Parking 25. All Other Traffic Viol. 26. All Other Offenses:  Malicious Mischief Vandalism Dog Nuisance Disturbance Dest. of Pers. Property Prowler Truancy  27. Suspicion  5  21  22  23  24  25  26  27  28  29  20  20  20  21  21  22  23  24  25  26  27  28  29  29  20  20  20  20  21  21  22  23  24  25  26  27  28  29  20  20  20  21  21  22  23  24  24  25  26  27  28  29  20  20  20  20  21  21  22  23  24  25  26  26  27  28  29  20  20  20  21  21  22  23  24  25  26  26  27  28  28  29  20  20  20  20  21  21  22  23  24  25  26  26  27  28  28  28  28  28  29  20  20  20  20  20  20  20  20  20		Stop Sign				21
Negligent Driving Defective Equipment  24. Parking 25. All Other Traffic Viol. 26. All Other Offenses: Malicious Mischief Vandalism Dog Nuisance Disturbance Dest. of Pers. Property Prowler Truancy 27. Suspicion  21 22 23 24 25 26 27 28 29 20 21 21 21 21 22 21 23 24 25 26 27 28 29 20 20 21 21 21 21 21 21 22 21 22 22 22 22 22		Reckless Driving		•		8 5
Defective Equipment 11  24. Parking 43  25. All Other Traffic Viol. 12  26. All Other Offenses:     Malicious Mischief 4     Vandalism 4     Dog Nuisance 2     Disturbance 4     Dest. of Pers. Property 2     Prowler 1     Truancy 1  27. Suspicion 1		Right of Way				5
26. All Other Offenses:  Malicious Mischief  Vandalism  Dog Nuisance  Disturbance  Dest. of Pers. Property  Prowler  Truancy  2  1  2  1  2  1  1  2  2  1  1  1  1			21			21
26. All Other Offenses:  Malicious Mischief  Vandalism  Dog Nuisance  Disturbance  Dest. of Pers. Property  Prowler  Truancy  2  1  2  1  2  1  1  2  2  1  1  1  1			11			11
26. All Other Offenses:  Malicious Mischief  Vandalism  Dog Nuisance  Disturbance  Dest. of Pers. Property  Prowler  Truancy  2  1  2  1  2  1  2  1  1  2  1  1  1			43			11 43 12
Malicious Mischief  Vandalism  Dog Nuisance  Disturbance  Dest. of Pers. Property  Prowler  Truancy  1  2  1  2  1  1  2  2  1  1  1  1  2  2			12			12
Vandalism Dog Nuisance Disturbance Dest. of Pers. Property Prowler Truancy 1 1 27. Suspicion 1 4 1 1 1 1 1 27. Suspicion	26.					
Dog Nuisance 2 Disturbance 4 1 Dest. of Pers. Property 2 Prowler 1 1 Truancy 1 1 27. Suspicion 1		Malicious Mischief	4		2	
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Truancy 1 1 27. Suspicion 1			, 2		· •	
27. Suspicion 1			1	1		
			1		1	
	27.	Suspicion	· 1			_
TOTAL PART II CASES 192 1 4 17		TOTAL PART II CASES	192	1	4	170

PAGE TWO MONTHLY REPORT	RICHLA	ND POLICE DEPARTMENT	APRIL 1952	
PART III.	KNOWN	UNFOUNDED	CLEARED OTHER*	CLEAREI ARREST
28. Missing Persons	5		5	
Lost Persons	5		5	
Lost Animals	3		1	
Lost Property	8		4	
29. Found Persons	•		-	
Found Animals	3		2	
Found Property	. 2		1	
TOTAL PART III CASES	26		18	
PART IV				
30. Fatal Mat. Veh. Traf. Acc.				
31. Pers.Inj.Mot.Veh.Traf.Acc.	6		•	•
32. Prop.Dam.Mat.Veh.Acc.	16			
33. Other Traffic Accid				
34. Public Accid.				
35. Home Accidents				
36. Occupational Accidents			• • • •	
37. Firearms Accidents	•			
38. Dog Bites				
39. Suicides				
40. Suicide Attempts				
41. Sudden Death & Bodies Fd.	1		1	
42. Sick Cared For				
43. Mental Cases				
TOTAL PART IV CASES	23		1	
COMPOSITE TOTALS				_
PARTS I, II, III, IV CASES	289	11	43	174

<sup>\*</sup> Cases listed under "Cleared Other" are those cleared by various means other than arrest, such as: orders 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 were no arrests.

Property reported stolen \$2,328.90 (including 23 bikes)
Property recovered \$1,716.00 (including 17 bikes)

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

Wash.Ore. & C		One month average	Richland January - June 1951	Rich March - 1952	aland April 1952	ſ
Murder	1.36	•23	-		_	
Robbery	37.4	6.2	_		-	
Agg. Assault	26.6	4.4	1	_	-	
Burglary	259.5	43.2	<b>17</b> °	3	1	
Larceny	823.9	137.3	141	35	22	
Auto Theft	128.5	21.2	8	-	1	
Bicycle Theft			158	27	23	

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

State of Wa 3ix months (Jan	shington • - June 1951)	One month average	Richland January - June 1951		nland April 1952	
Murder	•34	•056	-	_	-	
Robbery	9.35	1.56	_	_	-	
Agg. Assault	6.65	1.10	1	-	-	
Burglary	64.87	10.81	17	3	1	
Larceny	205.9	34-3	141	35	22	
Auto Theft	32.12	5.35	8	-	1	
P cle Theft	• .	-	158	27	23	-

The portion of offenses committed by persons under the age of 25 years is shown:

	Average e of cases - June 1951)	Richland January - June 1951	Richland March - April 1952 1952	
Robbery	53.6	-		
Burglary	61.7	4 -	2 🏯	
Larceny Auto Theft	45•2 69•7	25 —	6 1 2 1	

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."

find offers to property.	PTOHEAND POLICE DEPARTMENT	R. DEPARTMENT	JUV	JUVENILES INVOLVED	INVOL	ÆD	APRIL, 1952
MONTHLI REFORT					71	9	ηγγη• ΔΤ.
EUNEREO	NO. CASES	JUVENILES	SEX	7	म ज म	1	10.1
	. [	9	<b>*</b>		4	8	٣
Burglary- Break & Mic.					-	ď	4
Juvenilas with Liquor	<b>~</b>	4	<b>.</b>		₹	`	-
•	_	8	×	ત			2
Halicious Hischier	<b>i</b>		;		c	0	7
Auto Theft	<b>ત</b>	<b>-7</b>	<b>E</b> .		,	,	
					i	ţ	יאר
TOTALS	70	91		ત્ર	2		0
-							

RICHLAND FOLIT" DEPARTMENT RICHLAND JUST. GOURT GASES APRIL 1952

1192278						7(21 mm/y	7/17			CASES ORIG.	CASES INCL.			
	NO OF	NO OF	NO OF	CASES	CASES W	WARR.	SENT	SUSP	LIC.	PREV.	OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
VIOLATION	CACAN	AND T	· Contra	-					.i	-	7	<b>⇔</b> †	\$ 51.00	32.50
Defective equipment	13	2	۰,	4 (	٠, ١	_				+ رہ ÷⁄	15.	15.00	15.00	7.50
Drivers license	ಸ	6	9	<b>N</b>	-4	<u> </u>			c	`	}		127.50	
Drunken driving	~	ત્ય			1				ł				•	
F.T.O.P.O.	_			(	<b>-</b>					-				
F.T.S. & I.	-			-						4 6		25.00	25,00	
F.T.Y.R.O.W.	9	~	ત્ય	<b>~</b>						۰ د		20.67	75.00	28,00
Illegal parking	58	21	፠	€	ત					N		14/0/0	7.50	7.50
Illegal passing	_	-											•	
	-										<del></del>	7 50	00,10	17.50
140. T		9	ત્ય							c		200	1.28.50	00.00
Neoligent driving	36	র	5	<i>د</i> م	ત્ય					~ ·		14(0)	00 091	15.00
Deal and Amenda		۰.4		ત્ય	-				~		. (	200	197 50	96.31
	- 77	10	18	<del>0</del> 0		-				ς.	_	224.00	06.701	3 5
Specurity Store	ু ন	. ~	12	લ	~	3				ત્ય		62.50	W.C2	3.
										•				
belaconon a suriament	_				_			•		<b>-</b>				
Meanon							•							
Cont. to the del. of	-	_					<b>-</b>							
a minor					(					0			12,50	12.50
Dog ordinance	<u>~</u>	<del></del>		•	N					2				
Grand larceny	-			<b>-</b>			•				<b>~</b>			: :
Indecent language	<b>-</b>			•									İ	
Injury to personal prop	٠ <del>١</del>			<b>⊣</b>									32.50	
Malicious mischief	<u>-</u>	_		•									102,50	•
Petit larceny	~		•	-1								25.00	50.00	12.50
Public interdention	9	7	N	•	•	·	~	_					,	1
Third degree assault	*	<u>س</u>			4		`	+					25.00	25.00
Vagranoy						,	-	-	¥	76	23	\$614.00	\$1312,50	\$278.00
TOTAL	240	101	<b>ਡੋਂ</b>	ž	\$		4	<b>-</b>	`	1	ì	•		
			(				) Lette	led to	Tqua	c intox	amended to public intoxication.			

One reckless driving case amended to negligent driving. One grand larceny case amended to petit larceny. One 2nd degree assault case amended to 3rd degree assault One drunken driving case amended to public intoxication One drunken driving case amended to reckless driving. NOTE:

1

POLICE DIVISION - TRAFFIC CONTROL STATISFICS AFRIL, 1952

	Other Cases	`
Minor Injuries	Other Mar.	2
Minor Mar.	k Drunken Ing Apr.	<b>വ</b>
Injuries Apr.	Reckless & Drunken Driving Apr.	1
Major Mar.	to Yield of Way	
Fatilities Mar. Apr.	Failure to Yield Right of Way	5
Apr.	it Driving	Apr
Total Number	Negligent	Mar.
MOTOR VEHICLE ACCIDENTS:	ACCIDENT CAUSES:	Richland

PLANT WARNING TRAFFIC TICKETS ISSUED:

Richlend: NO WARNING TICKETS ISSUED FOR MARCE AND APRIL, 1952.

	<b>.</b>
ı	Dr.
	Neg.
	<b>;</b>
	Way
	of
<b>::</b> 1	parkless hr. Right of Way V. Neg. Drvg.
SCIENT	Ä
SI	ď
	4
덻	Q
FIC	į
RAF	
80	
ATI	!
CII	
XXRT	
2	
AN	
MANAGES AND COURT CITATION TRAFFIC TICKETS ISSUED:	
ر ن ا	3
TO A CITY	TUNE

Drvg. Parking V. Other V. Totals	Nar. Apr. Mar. Apr. Mar. Apr. Mar. Apr. 199  4 4 6 5 16 31 24 56 28 38 123 199	. Count for week ending April 26, 1952, Geo. Wn. Way north of Swift - 13,030 cars.
'. Neg.	. Mar.	pr11 26,
TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICATIO INC.	Speeding Stop Sign Drunken Dr. Reckless Dr. Apr. Apr. Apr. Apr. Mar. Mar. Mar. Mar. Mar. Mar. Mar. Ma	20 40 T4 C7
TRAFF		Richland Richland

TRAFFIC VOLUME: Average 24-Hour Traffic Volume Count for week ending April 26, 1952, Geo. Wn. Way north of Swift

Traffic Control Statistics show ORIGINAL CHARGES ONLY. NOTE:

#### COMMUNITY SERVICES

#### RICHLAND FIRE DEPARTMENT

### **APRIL 1952**

Organization and Personnel	Exempt	Non-Exempt
Employees Beginning of Month Transfers In	50	0
Transfers Out	0	0 .
New Hires	0	0
Terminations	. 0	0
	0	0
Leave of Absence (Illness)	1	. 0
End of Month	49	0
Fire Protection		
Fire Loss (Estimated)	Government Personal	\$ 85.00 30.00
	Total	\$115.00
Response to Fire Alarms		16
Investigation of Minor Fires and Incidents		. 8
Ambulance Responses		· 8 35
Inside Schools or Drills		34
Outdoor Drills		49
Safety Meetings		Ŕ
Security Meetings		49 8 5
Fire Alarm Boxes Tested		184
Airport Standby		4
Fire Hydrants Tested		3
Burning Permits		179
	• •	

Upon receipt from Transportation of a Howe 500 gallon-per-minute rural fire truck, two improvised grass-fire trucks were turned back to Transportation for disposal.

Engine Co. 6, in reserve, was equipped with foam generating, floodlight and heavy stream equipment.

Two groups visiting No. 1 Fire Station during the month included twelve Campfire Girls with two leaders and eighteen Jane Day Nursery children with two teachers. As a part of their community-wide tour on April 17th, the Community Council visited both fire stations and witnessed a demonstration of firefighting procedures at No. 1 Fire Station.

#### Fire Prevention

A total of 165 hazard inspections were made in April. Five hazard reports resulted from these inspections. Seventy three fire extinguishers were inspected, 4 were refilled and 1 installed.

The Assistant Fire Marshal addressed two safety meetings, totaling 120 Stores and Purchasing employees, on Clean Up Week.

At a meeting with School, AEC Engineering, architectural and contractor officials, hazards and code violations encountered by the Fire Marshal on the Jason Lee School acceptance inspection were discussed and it was agreed that twelve of the thirteen items would be corrected immediately. The final item is to be discussed at a later date.

As the result of a conference with AEC Engineering and Grinnel Sprinkler Company representatives, plans were made for correcting the inadequate sprinkler valve in the Jason Lee School.

Changes in the plans for addition to the "C" Wing sprinkler system at Kadlec Hospital were recommended at a meeting with Project Engineering and Plant Safety personnel.

The Fire Marshal attended two Chamber of Commerce meetings relative to fire prevention awards and annual Clean-Up Week.

Sponsored by the Richland Chamber of Commerce, a Clean-Up Week committee headed by Johnny Gerdes, with the assistance of the Fire Marshal's office, planned and conducted Spril 20-26 one of the best Clean-Up Week campaigns yet held in Richland. Some of the campaign highlights were as follows:

- 1. Excellent newspaper and radio publicity.
- 2. Merchants' cooperative full-page advertisements in local newspapers.
- 3. Mercantile window displays accentuating the theme, some decorated by the Columbia High School Retail Class.
- 4. Clean-up projects by merchant groups, student groups, residents and Boy Scouts.
- 5. Company safety meetings on Clean-Up theme.
- 6. Clean-Up movie strips at local theatres.
- 7. Display of approximately 450 promotional posters and banner strips.

Following a community-wide inspection for hazardous weed areas, most of the unsightly and hazardous areas were cleaned up.

Plant Security was asked to remove plywood signs wired to exit door panic hardware in Buildings 761 and 762.

Plans for the addition to Lewis and Clark Grade School and Building 722-C were reviewed with Plant Safety and/or Project Engineering. Several minor changes were recommended.

The Assistant Fire Marshal inspected all temporary sheds and buildings in Richland. Removal of several hazardous structures was recommended.

A conference was held with Real Estate and AEC Safety personnel on the Fire Marshal's request that the Desert Inn building be brought up to code.

#### COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT

#### ENGINEERING UNIT April 1952

Personnel	Exempt	Non-Exempt	Total
Employees - Beginning of Month Employees - End of Month	7	3	10
	7	3	10

# The Status of Active Projects is as follows:

- K-562 Automatic Irrigation Levee 2-C Construction work scheduled during the month of June. Difficulty in getting pipes causing delay in the job.
- L-262 Water and Sewer Assembly of God Church Project complete Final inspection May 1.
- L-608 Odors Emanating from Sewage Lift Station Plans and specifications 100% complete.
- L-911 Resurfacing of Parking Lot at Village Drugstore and Campbells Food #2 Prints and estimate of cost in hands of Contract Section. These quantities are to be added to the Bid Assembly of C-486.
- S-405B Street Tree Planting Additional Erosion Control Project complete. Final inspection April 29.
- S-552 Additional Fire Protection Desert Inn and Richland Theater Bid opening April 14, 1952. Waiting Notice to Proceed.
- C-408 Additional Erosion Control Project and contract complete. Final inspection April 29.
- C-425 1951 Park Development Program Site grading, sewer lines, parking areas, tree and shrub planting complete. Irrigation system started. Comfort Station under construction and lawn seeding not started.
- C-426 Street Improvement Program 1951 Top soil and seeding contract to Sprague McDowell Co., Seattle, Washington. Construction to start 4-29-52.
- C-486 1952 Street Improvement Program Specifications sent to reproduction 4-28-52. Prints of Specifications to be in the hands of the Contract Section this week.

#### Status of Active ESRs

- 369-CA Site Map CAP Field Def. for other work
- 473-M West Side United Protestant Church Final inspection made. Major structural defect found. Defect is being corrected.
- 510-M Roads and Streets Drawings 1950 Construction Def. for other work.
- $\sim$  544-SD Tree Planting for Schools No additional work planned this spring.
- 547-MD Fixed Irrigation System Design in progress.
  - 561-SD Chief Joseph Grounds Site grading and irrigation system 90% complete. Lawn seeding to start about May 15.
  - 565-RC Site South of Tract House 0-1224 Def. for other work.

#### Engineering Unit

- 572-M First Baptist Church Work 51% complete.
  - -MS Goethals Drive to Williams Study of Intersection Def. for other work.
- 581-RC "As Built" plans for LDS Church Plans returned to building committee for correction.
- 585-M Anderson Motors Addition Work complete One exception is delaying final acceptance.
- 591-M Preparation of Advise Pamphlet for Contractors Rough completed. Temporarily delayed for other work.
- 596-M Store Building #3 C. D. Joseph Materially complete. Final inspection to be made.
- 603-RC Legal Description McVicker Building #3 Being processed.
- 605-PR Erosion Control Project proposal completed. No additional work started.
- 609-M Plan Checking Store Bldg. #4 C. D. Joseph Construction work progressing. Work 95% complete.
- 612-RC "As Built" plans for Richland Thrifty Drug Returned to Architect for correction.
- 613-RC Building Alteration Permit #11 Central United Protestant Church Work completed and accepted.
  - -M Plan Checking McVicker Bldg. #4 Const. progressing Work 98% complete.
- 616-M Level Control Valve Sewage Treatment Plant Def. for other work.
- 617-RC "As Built" plans for theater building Def. for other work.
- 619-M Alteration of Greenway for Parking Area Design not started.
- 620-M Fire Hydrant Installation Birch Street between Kuhn Street and Swift Blvd. Bid opening April 14, 1952. Waiting for Notice to Proceed.
- 623-M Request for preliminary Engineering on Additional Erosion Control FY 1952 Work in progress.
- 624-M Landscaping Estimate for Central Fire Station Preliminary work is completed.

  Design to follow construction of building.
- 625-M Kirkpatrick Building #2, Block 4, Work progressing Work 98% complete.
- 628-M Prepare "as built" plans for Richland Fire Alarm System Def. for other work.
- 629-M Temporary Loan of Employees to Design Still active.
- 630-M Correction of Master Plan Work progressing.
- "As Built" Plans for Sewer System To be developed as time permits.
- bud-M "As Built" Plans for Water system To be developed as time permits.
- 633-M "As Built" Plans for Streets To be developed as time permits.

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#### Engineering Unit

- 634-M Engineer Liaison Richland Water Expansion Prepared and submitted data as requested by AEC - Work continuing.
- 637-M Engineering Parking Lots Chief Joseph School Design 90% complete.
- 639-RC Legal Description Bus Depot Being processed.
- 640-RC Anderson Motors "As Built" plans Def. for other work.
- 641-RC Sewer Service to Gillette Property Contract let. Work not started.
- 642-M Cost Estimate Boiler at #2 Fire Station Completed.
- 643-RC Legal Description for McVickers Bldg. Being processed.
- 644-RC Legal Description for Safeways Store Site on Harding and Cullum Being processed.
- 645-RS Richland Public Library Alterations Sketches requested have been completed.
- 646-M Engineer Liaison Central Fire Station Following construction of building.
- 647-RC Parish All Saints Episcopal Extend Utilities Being processed.
- 650-M Addition to Spencer-Kirkpatrick Building Work 95% complete.
- 651-M Estimate for Dog Pound Completed one proposal preparing alternate estimates. 10% complete.
- 652-M Measurement of Grass Acreage Completed.
- 653-M Willard Parker Building Addition Work progressing 40% complete.
- 654-M Elmer J. Hansen Bldg. Addition Plans not yet received.
- 655-M Ground Lease Kidwell-Gerdes Service Station No work started.
- 656-M Plan Checking Kidwell-Gerdes Service Station Plan not received.
- 657-M Review Richland Fire Station Def. for other work.
- 658-M Grounds Maintenance Report In progress of preparation.
- 659-RC R. H. Gillette Site (Add.) Not started.
- 660-RC Rex L. Jensen Proposed Site Work not started.
- 661-RC Richland Development Co. Site Block 5 Uptown Area Work not started.
- 662-M Extension to Mansfield Drive West Preliminary estimate made.
- 663-M Richland Development Co., Block 5 No. Comm. Area, Plan Checking Plans not received
- 664-M Sprinkler System Jason Lee School Work progressing.

#### COMMUNITY REAL ESTATE SECTION

SUMM ARY

APRIL 1952

#### ORGANIZATION AND PERSONNEL:

	BEGINNING	OF MONTH	END OF M	HTMCI
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial Property Unit	7	5		. 5
Housing & Maintenance Unit	22	162	22	155
	29	167	29	160

Net Decrease in Employees for month of April 7

#### GENERAL

The following establishments opened for business in the month of April as sublessees in the following buildings:

C. D. Joseph Bldg. #2: Pleiss-Davis, Inc. Uptown Barber Shop	1374 Jadwin 1370 B Jadwin	April 1, 1952(New Location) April 2, 1952
Virgil O. McVicker's Bldg.#2 Pink Cameo	1303 Geo. Wash. Way	April 2, 1952
Automatic Laundry Co.'s Eldg. Newman's Bakery Stanfield's Florists	#2 1330 Jadwin 1332 Jadwin	April 4, 1952 April 8, 1952(New Location)
C. D. Joseph's Bldg. #1 Jim & Jake's Sporting Goods	1362 Jadwin	April 10, 1952(New Location)

#### HOUSING AND MAINTENANCE UNIT

# April, 1952

#### ORGANIZATION AND PERSONNEL

- And the second Number of employees on payroll: 22 Exempt Beginning of month 162 Non-Exempt 184 184 22 Exempt End of month Non-Exempt 177 177

# RICHLAND HOUSING

# HOUSING UTILIZATION AS OF MONTH ENDING APRIL 30, 1952

	Conven tional	Block	T —	Pre cut	Ranch	Pre fab	Apt	4th add	Tract	Total
G.E.Employees Commercial Facilities Community Activities Medical Facilities Post Office A.E.C.and other government	2217 91 9 3 5	259 11 16 29	9	383 34	819 79 5 2 3 56	1165 59 5 1 12 22 53	56 7	264 9 3 1 16 2	38 5 1 3 3	5210 2% 20 25 24 250 121
Schools Atkinson and Jones Vitro Corporation Charles T. Main Newberry Neon Urban-Smythe-Warren Universal Foods	49 7 6. 1 3	1 13 3		5 3 2 2 1	9 9 3 3	5 3 11	1	1 1 1		42 23 17 7 4 3
Robert's Filter V.S.Jenkins Vernita Orchards					1				5	1 5
Total Houses AssgnLeases written Houses assgn.Leases not written Available for assgn. Turnovers	2493 1 4 1	333	10	1	999	1339 1 2	73	298 1	55	6049 1 3 6 3
Touse Exchanges	2500	333	10	0 450	1000	1342	2 74	300	55	6064

Conventional Type A and J Houses	Begin Month 2495 332 10	Moved In 24,	Moved Ou 26 3	t <u>Month</u> 2493 332 10	End <u>Diff</u> . Minus 2
Precut Type Ranch Type Prefab Type	451 9 <del>99</del> 1332	6 17 35	6 17 27	451 999 1340 73	Plus 8 Minus 2
Apartments Fourth Housing Addition Tract	75 298 54	1 4 1	6	296 55	Minus 2 Plus 1
Total	6046	91	88	6049	Plus 3

DORMITORY	STATISTICS
-----------	------------

APRIL 1952

Dormitories:		Occupants	Vacancies	Total Beds
Men Occupied	15	616		616
Women Occupied Women Unoccupied	12	*481	3	478
		1097	3	1094

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.

There are 130 men waiting for rooms in Richland. There are 0 Women waiting for rooms in Richland. There are 47 men waiting for single rooms. There are 89 Women waiting for single rooms.

#### GENERAL

## ALLOCATION SECTION STATISTICS

46	Voluntary Terminations	24
20	ROF	2
18	Discharge	1
10	Transfers	3
91	Retirement-Divorce-Death-Misc.	4
•	Houses Assigned "AS IS"	<del>3</del> 5
		11
666	Houses sent to Renovation	26
	20 18 10 91 45 88	20 ROF 18 Discharge 10 Transfers 91 Retirement-Divorce-Death-Misc. 45 Houses Assigned MAS IS Move off Project

## DORMITORY REPORT FOR APRIL - 1952

247	MINOR REPAIRS TO FUSES, PLUMBING, ETC.
18	WORK ORDERS STEAM, GLASS, EQUIPMENT, ETC.
600	LIGHT GLOBES REPLACED.

## LINENS LAUNDERED

10,671	SHIPPIS
5,514	PILLOW CASES
291	BED SPREADS
87	HED PADS
347	SHOWER CURTAINS
2_	PAIRS DRAPES

## MISCELLANEOUS STORES WAREHOUSE INVENTORY SUMMARY MONTH ENDING APRIL - 1952

	EXPENDABLE ITEMS	FURNITURE (GEN, LEDGER)	FURNITURE (KARDEX CONT.)	PLANT ITEMS	TOTAL
BEGINNING BALANCE RECEIPTS:	\$15,493,70	\$ <u>10,966.06</u>	(\$9,884,26)	\$39,310.19	\$65,769.95
On Purchase Order	s 1,029.20				
On Store Orders	358.89				<del></del>
From Housing	400.76		121.76	1.905.87	
From Dormitories	934.21		663.88		
TOTAL RECEIPTS	\$ 2.723.06	\$	\$ 785.64	\$ 1,905.87	<b>\$</b>
TOTAL AVAILABLE DISBURSEMENTS:	\$18,216,76	\$10,966.06	\$10,669.90	\$41,216,06	<u>\$</u>
Cash Sales (Backo	harge)47.44				
To Excess	108.00				
To Salvage	451.60		426.72	2,450,80	
To Housing	1.394.03			880,60	
To Dormitories	7,929.04		88.04		
Dorm-Shades & Ref	lectors 161,6	57			
To Warehouse Supp	plies <u>87.</u> 2	19			
Grass Seed				599.36	
To Other (Misc.)	22.8	38	· · · · · · · · · · · · · · · · · · ·	952.50	
TOTAL DISBURSEMENTS	\$10,202,15	. \$	(\$ 514.76)	\$ 4.883.26	\$
ENDING BALANCE (1)	(2) (4)8,014	61 10.966.06	(\$10,155.14)	\$36,332,80	\$55.313.47
NET CHANGE	\$ 7.479.09	\$ 10.966.06	\$ 270.88	\$ 2,977.39	\$10,456,48
ENDING BALANCE GENE	ERAL LEDGER (	BALANCE-COL.	1 PLUS COL. 2 )		\$18,980.67
COLUMN 3 FOR LOCATI	ION CONTROL OF	NLY-COLUMN 4 M	EMO ACCOUNT ONL		
EXCHANGED: Dorm. Furniture Ranges Refrigerators Prefab Heaters	PIECES 23 5 4 2		COMMEN	<u>!:</u>	

#### TEMANE RELATIONS WORK ORDER AND PROGRESS REPORT - MONTH OF APRIL, 1952

Processing of Service	ce Orders, Work Ord	ers & Service Cha	
	Orders Incomplete as of Harch 31	? (rdors Issued 3-71 to 4-10	Total Crders Incomplete as of April 30, 1952
Service Orders Work Orders Service Charges	72 • <b>11</b> 50	1859 534 257	59 1536
Principal Work Order Loads	Incomplete		Incomplete as of
	March 31, 19	952	April 30, 1952
Laundry tub replacement Lathroom Renovations (tub, tile, Tileboard Only (Bathroom) Kitchen Cabinet Linoleum	25 lino.) 52 22		14 48 1 10
Kitchen Floor Linoleum	25		28
Shower Stalls	10	.•	8
Alteration Permits Issued During in March.	the Month of April	totaled <u>90</u> compa	red to <u>81</u> issued
Floors sanded		nstall Concrete p	
Install fence			ucets and sprayer 1
Install auto. Washer		nstall fireplace	3
Install auto. Dryer	<b>-</b>	emove broom close onstruct shade sh	•
Basement excavations	. 4 I	onstruct shade sh nstall back door	1
Install Driveway Install water softener		nstall cooling pa	
Basement partitions		nstall wiring in	
Install air conditioner		orch addition	1
Reverse Range & Refer		nstall patio	11
Install auto. dishwasher		ove clothes poles	1
1174 Inspections were made during		l compared to 166	
Alteration Permits	•	creen doors	74
Bathtubs	<b>J</b>	hades	2 24
Cupboards	<b>→</b>	hower Stalls	24
Drainage	— <del></del>	idevalks	9
Driving on grass Floor boards	<del>-</del>	inks ileboard	20
Grass seed	-	cilet seats	29
Grass seed  House Siding		onet seats	25
Jack & Shim		alls	21
Leaking Basements	-	indows	5
Linoleum	1 1 m 1 mm m m 1 1 1 1 1 1 1 1 1 1 1 1	ancellations	49
Lot Lines		enovations	63
Paint		hows (New tenants	
Porch & Steps	. 28 M	iscellaneous	312

## HOUSING MAINTENANCE.

## I. HOUSING MAINTENANCE EACK-LOG REPORT

TYPE OF WORK	OLDEST ISSUE DATE	BACK-LOG	RATE OF REPLACEMENT
Bathtubs, including tile board (bath) floor lino (bath) painting (bath)	3-13-52	48	10 per week
Tile board - A & J (other than tub installation	) 4-5-52	1	None
Painting (misc.)	orders ready 2-26-52	65	40 per week
Kitchen floor lino. Prefabs	3-19-52	5	None
Kitchen floor lino. (Conventional)	3-14-52	23	3 per week
Bathroom floor lino. (Prefabs)	3-19-52	3	1-2 per week
Bathroom floor lino. (Conventional)	11-28-50	2	"D" houses (when shower is installed)
Kitchen sink lino. (Prefabs)	4 <b>-1-</b> 52	1	2 per week
Kitchen sink lino. (Conventional)	3 <b>-</b> 7 <i>-</i> 52	9	10 per week
Shower stall installations	12-7-50 "D" 5-29-51 Tra 2-28-52 Oth		5 per week
Laundry Trays	3-28-52	1/4	10 per week

## LI. MAINTENANCE TRANSPORTATION EQUIPMENT

TRUCK TYPE		NO. IN POSSESSION	CRAFT
l ton Flatbed 1/2 ton Pickups 1/2 ton Pickups Panels 3/4 ton Walkin Panels 1½ ton Flatbed 1/2 ton Pickups 1/2 ton Pickups 3/4 ton Pickups 3/4 ton Pickups		8 6 2 3 1 2 3 4 5 3	Carpenters Carpenters Sheetmetal Millwrights Millwrights Painters Painters Painters Painters Plumbers Plumbers
	Subtotal:	37	
SERVICE ORDERS:			
3/4 ton Pickups 1/2 ton Pickups 1/2 ton Pickups 1/2 ton Pickups 1/2 ton Pickup 1/2 ton Pickup		2 2 4 2 1 1	Plumbers Plumbers Electricians Carpenters Locksmith Glazier
	Subtotal:	12	
RENOVATIONS AND LAB	OR:		
Chevrolet Carry	all	1	Painters & Janitresses
1/2 ton Pickup 8½ ton Dumps 3/4 ton Power Wagon	ı	2 2 1	Carpenters Labor Labor
	Subtotal	: 6	•
GENERAL:			
Sedans		_2	Supervision
	Subtotal	2	
GRAND	TOTAL:	57	

#### III. PROGRESS REPORT

#### A. INTERIOR PAINT PROGRAM:

Minor carpentry repair work was done in IL5 units of housing prior to painting. This work consisted of repair and replacement of cupboard doors; checking of doors and windows for free operation; replacement of sash balances, cabinet door catches, repair of loose molding, etc. This work is done in the part of the house that is to be painted.

Interior painting on Interior Paint Cycle Program was completed in 115 units of housing.

Interior painting of Dorms W-2 and W-3 was completed and W-5 is 50% complete. Also, the interior of the Bomber Bowl Rest Rooms was painted by this group.

## B. FIELD CARPENTRY - LINOLEUM & TILE:

The following units of work were completed by this group during the month.

Replaced bath lino.	51	Installed tile board.	37
Replaced kitchen lino.	37	Jack and Shim jobs.	30
Replaced sink lino.	72	Applied roof coating.	15
Replaced sinks.	10	Reset clothes line posts.	1
Replaced sash balances.	1	Repaired roofs.	6
Repaired porches.	8	Chempoint jobs.	155
Raised rear slabs.	3		

#### C. CARPENTER SHOP:

The Carpenter Shop in 722 Hangar completed the following units of work during the month of April. Besides the work listed, this shop performed many miscellaneous small jobs such as; fabrication work of cabinets, cabinet doors, wooden boxes, etc.

Doors repaired for Precut houses:	100
Screen doors repaired:	12
New screen doors installed:	22
Street steps replaced:	24

#### D. PLUMBING:

The Plumbing group accomplished the units of work listed.

Installed bathtubs:	46	Installed water heaters:	18
Installed laundry tubs:	52	Installed Shower stalls:	26

#### This group completed:

57 Work Orders consisting of repairing broken water lines, sewers, replacing plumbing fixtures, etc.

46 linoleum repair jobs; consisting of removing and replacing toilet bowls for linoleum men.

19 Steam Work Orders consisting of replacing rusted-out steam pipes, repairing or replacing steam valves and traps.

The Plumbing group cleaned <u>li</u> outside sewer lines that were clogged with tree roots.

Lj-9

#### (Plumbing, cont'd

Steam inspections were made on Dorms, Geo. Wash. Way Apartments, Gilmore Apartments and Commercial buildings once a week.

Steam coils at Kloffenstein's and the Shoe Salon were replaced.

Service sink, drain lines were cleaned out in 28 Dorms.

All faucets, shower valves and toilet tanks in 28 Dorms were repaired.

Domestic irrigation system in 1100 Area was turned on.

This group is now repairing National water heaters - 722 Hangar.

#### E. MILLWRIGHTS:

- 1. This group, in past month, has completed routine service and inspection work on "C" and "K" type and Precut houses. Complete inspection on all "C" and "K" furnaces was made for A.E.C.
- 2. All Dorm cooler work has been completed with the exception of installing pads; these are still being waited for.
- 3. Repairs were made to Band saw in Carpenter shop, and a new head was installed on the planer. This head had to be removed and sent back to the vendor because of defects.
- 4. This group is now working on a machine to be used for cleaning out air ducts and pipes in residence furnaces.

#### F. SHEETMETAL:

- 1. This group made and installed shower stalls in W-7 and W-21 (16 shower stalls) in past month.
- 2. Two-thousand (2000) feet of flashing was made and installed on "R" and "Q" houses.
- 3. Scrap linoleum and tile was cut into 9" squares for use in linoleum shop.
- 4. Sixteen (16) shower stalls were made and installed in 2 BR and 3 BR Prefabs.
- 5. Numerous other jobs; such as, repair to gutters and flashings; air conditioner pad holders and hot water tank jackets, were done by this group.

#### G. RENOVATION:

During the month of April there were twenty-eight (28) houses processed by the Renovation Group. Of these twenty-eight houses, two received partial interior painting and cleaning. The remaining twenty-six (26) received interior cleaning only. All twenty-eight houses received necessary carpenter repairs.

There are three (3) Renovation orders left on hand.

There were forty-six (46) trash pickups made from vacant houses.

#### H. SERVICE ORDERS:

The following is a status report on Service Orders:

Α.	On hand at the beginning of the month:	130
В.	Received during the month:	1316
C.	Completed during the month:	1887
D.	On hand at the end of the month:	59
E.	Time spent or Work Orders	492.2 hrs.

F. Backlog of Service Order Crafts:

Locksmith:	250	hrs.	
Carpentry:	100	hrs.	
Glazing:	0	(Daily	consumption)
Electrical:	0	n	tt
Plumbing:	0	tŧ	17

#### I. LABOR:

- 1. Pumped settling basins 784 and 784-A, and hauled ashes from 784 Building. (Weekly routine work)
- 2. Picked up and disposed of waste oil from seven (7) stations. (Semi-monthly)
- 3. Removed five (5) trees--Work Orders.
- 4. Hauled gravel and backfilled drain field at Tract House K-772.
- 5. Hauled two loads of scrap for General Services Section.
- 6. Hauled forty-seven (47) loads of topsoil. (Delivered to houses in village.)
- 7. Installed signs in Dormitory, service parking areas.
- 8. Cleaned up area between two churches in 500 block on Goethals.
- 9. Installed bumper logs in compounds on Haupt, Mahan and Marshall.
- 10. Removed dead limbs from trees at 1107 Lee.
- 11. Excavated and backfilled four sewers. Backfilled three cleanouts.
- 12. Filled forty-four (44) sets of street steps with blacktop.
- 13. Replaced one service walk; repaired two service walks to houses.
- 14. Backfilled septic tank to Tract House K-778.
- 15. Filled and corrected grade behind 1403-1403 Perkins.
- 16. Hauled trash from around 720 Building for General Services.
- 17. Backfilled and graded in rear of 1924 Howell.
- 18. Hauled two loads of equipment from Desert Inn to 3000 Area Salvage.
- 19. Replaced window well and repaired lawn at Tract House L-901.
- 20. Repaired blacktop driveway between the new two-bedroom apartments.
- 21. Excavated and backfilled three water services in the village.
- 22. Removed gravel from twenty (20) sets of street steps for blacktop.
- 23. Hauled six loads of dirt from the dormitory areas.
- 24. Delivered two tanks of sanitary water to Tract House K-734.
- 25. Repaired parking lot in rear of Ganzel's Barber Shop with blacktop.
- 26. Repaired parking lots on both sides of Safeway Store with blacktop.
- 27. Repaired parking compounds in the dormitory areas with blacktop.
- 28. Pumped septic tank and excavated and backfilled sewer at Dog Pound.
- 29. Excavated and backfilled irrigation to three new innerblock areas.
- 30. Removed sand from the lawn at 1530 Wright.
- 31. Cleaned and swept Ganzel's parking lot.
- 32. Cleaned up and hauled trash from six areas in the village.
- 33. Backfilled two foundations in the village.

## J. FIELD CARPENTRY:

This crew has been newly organized and has been assigned to H. W. Persons to perform cycle exterior carpentry repairs

The exterior repair on Precuts is approximately 50% complete. The largest item of work is the repair to screen doors.

The exterior repair of the A & J houses is about 80% complete. The major part of this work is the repairing of soffit boards. These houses also require repairs on screen doors and replacing of siding.

#### REAL ESTATE ENGINEERING UNIT Abril 30, 1952

Following is the status of active projects being handled by this unit:

K-918, Exterior Painting - Three Government-Owned Buildings

Contract awarded. Work to be completed during month of June, 1952.

L-911, Resurface Parking Lot Between Campbell's Food Store No. 2 and Village Pharmacy.

Plans and specifications out for approval.

L-921, Repair of Fire Damaged Prefab - 1004 Wright Avenue

Bid opening held April 15, 1952. Contract awarded to Cecil C. Hill of Kennewick, Washingto Manager's Appropriation Request for additional funds approved 4-22-52.

S-909, Exterior Cycle Painting-331 Houses - Divisions II and III

Work began april 7 and is approximately seven percent complete.

S-922, Damaged "A" House - 1311 Swift Boulevard

Bid opening held April 15, 1952. Contract awarded to Cecil C. Hill, Kennewick, Washington.

Following is the status of active ESRs being handled by this unit:

903-RH, Alteration Inspections

No activity this month.

904-RM, Procurement Aid and Material Studies

Routine duties performed as required.

910-RC, Approval of Pasture Land Permits

Routine work.

913-RH, Study of Kitchen Light Fixtures in A & J Ranch Houses

Recommendation report made to Real Estate Maintenance Group.

917-RH, Drainage of Inner Block Area

Deferred for other work.

919-RC, Approval of Alterations-Desert Inn Hotel

Additional wiring being installed.

924-RH, Exterior Painting - M, Q, R, & S Houses

Estimate completed and specifications in progress.

1192298

#### 925-RH, Exterior Cycle Painting - U & V Houses

Estimate prepared. To be combined with 924

726-RM, Inner Block Area Drainage - 1400 Block Perkins to Potter

Work completed.

928-RH, Exterior Painting - 14 Tract Houses

To be combined with 924

929-RH, Study Possible Alterations - 413 George Washington Way

Deferred for other work.

930-RH, Concrete Walks and Steps - 552 Houses

Estimate being prepared.

931-RC, Study of Tract House Removal

No further action.

932-RH, Exterior Painting - 6 BOQ Dorms

To be combined with 924

933-RM, Electrical Alterations - The Mart

New switch and distribution panel to be installed.

934-RH, Floor Plan Sketches - All House Types

Sketches completed

935-RM, May 113- Domestic Irrigation Corrections and Additions

As Built changes to be added to water line Map 113.

#### COMMERCIAL PROPERTY - REAL ESTATE SECTION

#### April, 1952

## PERSONNEL - COMMERCIAL PROPERTY:

	April
Beginning of month	12
End of month	12
Net difference	0

#### PERSONNEL - COMMERCIAL AND NONCOMMERCIAL FACILITIES:

	<u>Commercial</u>	Noncommercial	Total
March	1,368	117	1,485
April	1,387	118	1,505
Net increase	19	1	20
SUMMARY OF ROUTINE	ITEMS PROCESSED:		
Work Orders	46	5	51
Back Charges	4	. 2	6

#### CONTRACTS AND NEGOTIATIONS:

#### A. Commercial:

#### 1. License Agreement:

a. Cascade Coca-Cola Bottling Company - covering the sale of Coca-Cola and the installation of automatic Coca-Cola vending machines in certain Government-owned buildings.

#### 2. Assignment of Lease:

- a. C & H Foods, an individual, assigned to C & H Foods, Inc.
- b. Automatic Laundry Company Building #1 (except Uptown Tavern) assigned and sold to L. R. Bailey.
- c. Village Pharmacy by Fred R. Stipe and Dale Green, a partnership, to John S. and Eleanor G. Ray.

### 3. Letters of Award:

#### a. Uptown Commercial Area:

(1) Richland Development Company - for construction and operation of a one-story commercial building in portion of Block 5.

#### b. Light-Industrial Area:

- (1) R. H. Gillette area of approximately 17,500 sq. ft. in addition to previously awarded site.
- (2) Kidwell & Gerdes for construction and operation of a service station at corner of Duane Avenue and Lee Blvd.
- (3) Rex L. Jensen for construction and operation of Cocktail Lounge on triangular plot adjacent to New City Cleaners.

#### 4. Letter of Authorization:

a. F. H. Moller - sublease of restaurant and tavern to R. C. Wheeler.

#### B. Noncommercial:

#### 1. Letters of Authorization:

- a. Request for rental of Government-owned equipment Church of the Nazarene.
- b. Request for rental of Government-owned equipment West Side United Protestant Church.
- c. Richland Masonic Lodge #283 covering the metering of electricity effective as of May 1, 1952, and separate monthly billing in accordance therewith.

#### JUMMARY OF OCCUPANCY AND EXPANSION STATUS:

#### A. Commercial

1.	Number of Government-owned buildings	March 37	April 37
	a. Number of businesses operated by prime lessees	41	41.
	b. Number of businesses operated by sublessees	. 16	16
	c. Total businesses operating in Government-owned buildings	57	57
2.	Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
· 3•	Number of privately-owned buildings	44	45
	a. Number of businesses operated by prime lessees	39	39
	b. Number of businesses operated by sublessees	39	43
	c. Total businesses operating in privately-owned buildings	78	82
4.	Privately-owned buildings under construction	5	4

#### COMMERCIAL PROPERTY - REAL ESTATE SECTION

April, 1952

			March	April
5•	Tot	al number of businesses in operation	135	138
В.	Non	commercial:		
	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	6	6
		b. Under construction	6	7
	3.	Sites tentatively allocated or leases in process of negotiation.	2	_1
		Total-	14	14
	4.	Pasture Land Permits	77	79

#### GENERAL:

#### A. Commercial:

- 1. Pleiss-Davis, Inc. opened for business at new location, 1374 Jadwin, in the C. D. Joseph Bldg. #2, on April 1, 1952, terminated sublease with Automati Laundry Co. on same date.
- 2. A. J. Raber opened "Uptown Barber Shop" for business, 1370 B Jadwin, in the C. D. Joseph Co. Bldg. #2, on April 2, 1952.
- Pink Cameo opened for business, 1303 George Washington Way, in Virgil O. McVicker's Bldg. #4, on April 4, 1952.
- 4. Newman's bakery opened for business, 1330 Jadwin, in Automatic Laundry Co. \* Eldg. #2, on April 4, 1952.
- 5. Stanfield's Florists opened for business at the new location, 1332 Jadwin, in the Automatic Laundry Co. Bldg. #2, on April 8, 1952.
- 6. Jim & Jake's Sporting Goods opened for business, 1362 Jadwin, in C. D. Jose Bldg. #1, on April 10, 1952.

#### B. Noncommercial:

l. Parish of All Saints Episcopal - commenced construction of a new church building at 1322 Kimball Street.

2. Pasture permits - four new permits were issued and two old permits were cancelled.

#### COMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of commercial enterprises:

Auto Agency

Building Materials and
Fuel Yard

Coin-operated Machines

Electrical Contracting

Garage

Garage

Plumbing Contracting

Recap Shop

Roller Skating Rink

Drive-In Theatre

Tire Store

#### NONCOMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of noncommercial enterprises:

Union Hall - Richland Labor Temple Association, Inc.

# 700-1100-3000 AREA SERVICES SECTION MONTHLY REPORT APRIL 1952

#### 700-1100 MAINTENANCE AND STEAM UNIT

#### General Maintenance:

Radiator valves and traps were repaired and riser pipes replaced in 762 Building.

Irrigation water has been turned on and systems repaired in preparation for lawn sprinkling at hospital. Public Health, cemetery and 700 Area grounds.

All desert coolers have been serviced and repaired for summer service.

The biennial overhaul of number four boiler is in progress; several tubes will require replacement.

The program of preparing excess materials for shipment moved along at a steady pace with two men full-time for the month. This program may be stepped up 100% in the near future.

Approximately 65 hours were spent on saw filing and sharpening of tools for 700 Area tool crib and other departments.

The Cashier's Office in 703 Building was extended to provide more room and to accommodate a third cashier window.

One hundred feet of Hauserman partition was installed in 760 Building, with 50 feet having filler plate to the ceiling. Approximately 80 feet of Hauserman partition was rearranged for space convenience in 702 Building.

Several feet of curbing and 104 crosswalks were striped in Richland, cost of which was reduced substantially by the use of a recently adopted striping cart.

Interior painting at Fire Station No. 2 is completed. Repainting of hallways and spot painting of rooms at hospital is underway.

Routine work for all crafts was heavy throughout the month.

#### Steam Operation:

Boilers No. 1 and 3 were in service for the entire month with a steadily decreasing load reflecting the influence of warmer weather.

The quantity of steam generated at 784 Heating Plant was 8.6% less than that for April of the previous year.

The valve pits and manholes of the underground steam distribution system were inspected and cleaned.

The soft water flow to Kadlec Hospital steadily increased during the month; the 70,000 gallons per day consumption at the end of the month being about double the usage at beginning of the month.

The mild weather required only night firing at 1131 Bus Terminal Heating Plant during a large portion of the month, a few days requiring no heat.

Steam Generated Steam Leaving Plant Steam Delivered	16,622.7 14,129.3 11,969.3	M. Lbs.
Coal Consumed	1,278.65	Net Tons
Total Water Softened Soft Water Sent to Kadlec Hospital Soft Water Used at 784 Heating Plant Soft Water Served to Kadlec Hospital	3,524,600 1,476,790 2,047,810 719	Gallons Gallons Gallons Hours

#### Maintenance Backlog:

Foreman	Type of Work	Manhours	No. of Crew Days	Men on Routine	Total
Bennett	Electrical	772	24	4	7
McCartney	Machinist	24	6	•5	1
•	Welder	70	17	•5	1
	Sheetmetal	166	21	1	2
	Millwright	74	6	3.5	5
<b>Va</b> ught	Painting	500	32	•	2
J	Sign Painting	300	37		1
	Carpenter	600	17	4.5	9
Marzyck	Plumber & Pipe-		• •		·
•	fitter	456	28 <del>1</del>	2	4
	Serviceman	0	o	1	1

#### RITH RICHLAND PATROL UNIT

#### General Information:

During April 71 traffic warning tickets were issued, mainly for minor traffic violations.

Ninety-three traffic citation tickets were issued - 15 for Negligent Driving, 20 for Stop Sign Violations, 15 for No Operator's License, 23 for Speeding, 8 for Illegal Passing, 6 for Illegal Parking, 2 for Invalid Plates, 3 for Defective Equipment and 1 for No Arm Signal.

Fourteen persons were incarcerated in the Richland jail - 5 for Driving While Under the Influence of Intoxicating Liquor, 4 for Public Intoxication, 1 for Public Nuisance and Resisting Arrest, 1 for Drunk and Disorderly Conduct, 1 for Third Degree Assault, 1 for Vagrancy, and 1 for Vagrancy and Public Intoxication.

Seventeen inquiries regarding formerly employed General Electric and construction personnel were answered during the month.

All fire, safety and traffic hazards observed by North Richland Patrol were reported to the proper authorities.

All facilities, warehouses, buildings and the John Ball School were checked daily on No. 1 and 3 shifts, and on all shifts on Sundays.

enty-four weekly hours and eight monthly hours were spent on escort service from Pasco.

This Unit assumed landlord responsibilities for Patrol Building effective April 1.

An Appearance Officer was assigned to Judge Brown's court in Richland on Thursday evenings to appear against persons cited to court by North Richland Patrol.

Fourteen firearms were checked out of the Contraband Room, and ll were checked in during April.

On April 1 Chief C. H. Overdahl gave an informal talk to the children at John Ball School. He stressed the necessity of using and obeying all traffic laws and following all safety rules when riding their bicycles.

#### North Richland population is as follows:

Bremerton Houses———————————————————————————————————	3,786 1,084	Total Occupied Lots in Trailer Camp 1, Total Bremerton Houses Occupied	343 187
TOTAL OCCUPANTS	5,579		

#### Unusual Incident Reports:

Public Intoxication————————————————————————————————————	4111111111	Accident (1 Gov't. & 1 Private Car)————————————————————————————————————	1 1 2 2 1 1 1
Passing in No-Passing Zone, Speeding, No Operator's License Short in Electrical Wiring	1	Reckless Driving  Reckless Driving, Liquor Involved	2 1
Family Disturbance Driving Under Influence of Liquor Negligent Driving	1 6	Accident (Cleaning Truck & House)————————————————————————————————————	1
Negligent Driving, Liquor Involved, No Operator's License	2	Missing Lumber  Investigation of Questionable Persons  Investigation of Complaint	

#### Special Services Performed:

· · · · · · · · · · · · · · · · · · ·		•	
Emergency Messages Delivered-	73	Billfolds Returned to Owners	3
Emergency Long Distance Calls	.51	Suspicious Persons Investigated-	6
Western Union Telegrams	4	Personnel Locked out of Rooms-	3
Fires (Signal 12)	7	Bicycles Reported Lost or Stolen-	4
False Fire Alarms	9	Bicycles Found	7
Conditions Reported to Maintenance	8	Bicycles Returned to Owners-	5
Escorts to First Aid	4	Soldiers Turned over to M. P.'s	7
Patrolmen To Assist Ambulance	2	Cars Impounded at Headquarters	5
Dogs Impounded	1	Children Lost	6
Children Bitten by Dogs	1	Children Returned to Parents	6
Billfolds Turned into Patrol	3	Escort for Wide or High Loads	2
	-		

#### Complaints:

	• •
Grand Larceny	3 Miscellaneous 2 1 Complaints Cleared 2
119230b	_\$

1		APRIL 1952	APRIL 1952	1952	i				
NO. OF NO. OF NO. OF CASES CONV.		NO. OF FORF.	CASES DISM.	CASES CONT * D.	SENT. JAIL	LIC. RVKD.	TOTAL	TOTAL SUSP.	TOTAL BAIL FORFEITED
Driving 15 8	89	•9		٦,			\$ 142.50	\$ 35.00	\$ 162.50
Drunker Driving 7 5	2			,cv		7	730.00	50.00	
Stop Sign Violation 20 5	2	<b>16</b>	-	-			21.00	•	83.00
- •	: <b>•</b> 0	• •		7			36.00	7.50	70.50
Speeding 5	9	16		<b>-</b>			47.50		196.00
Illegal Passing 8 1	-	7	•				2.00		62.50
Tllegel Parking		Ü		М					12.00
Time 14 Distant		-					3.50		3.50
	· ~	-		-			7.00		3.50
No Aven Stone	~						3.50		
Public Intextcation 6	·	9							112,50
Vagrancy	H				H		·		
3rd Degree Assault 2 2	٠ «						62.50	35.00	
Drunk & Disorderly 1 1	.1				, <b>ન</b>		35.00	35.00	
Public Nuisance 1 1	-						12,50		
TOTALS 111 40	07	719	1	6	ત્ય	<b>4</b> .	<b>*</b> 806.00	<b>\$ 162.</b> 50	00*902 \$

#### NORTH RICHLAND FIRE UNIT

Alarm No.	Response to Alarms	Cause for Alarms	How Received
59	4th & Stevens, Bks. 3105-A	Undetermined at time of report	Box
60	Transformer between G.W.W. & "M"	Short Circuit	Book
61	Barracks 232 A & B	False Alarm	Box
62	Barracks 152	Smoker's Carelessness	Box
63	Trailer at 1019 "H"	Clothing thrown over light bulb	Book
64	Bremerton House at 905 "B"	Overloaded oil stove	Phone
65	Alarm Box at 8th & G.W.W.	False Alarm	Box
66	Service Station at 5th & G.W.W.	Can of paint ignited from hot plate	Book
67	Lumber Pile at Snyder & G.W.W.	Unknown	Verb <b>al</b>
68	F.F.A School, South on G.W.W.	Probable Smoker's Carelessness	Phone
69	Trailer at 902 G.W.W.	Faulty electrical wiring	Book
70	Automobile at 531 "E"	Probable Smoker's Carelessness	Phone
71	Barracks at 4th & mwm	Accidental Alarm	Book
72	Cafeteria #2 at 3rd & "W"	Broken 200 Amp. fuse leaking	Phone
73	Hospital at 5th & G.W.W.	Accidental Alarm	Box
74	Theater at 5th & "W"	Accidental Alarm	Book
75	Hospital at 5th & G.W.W.	Accidental Alarm	Book
76	Lumber Pile at Spangler on Stevens	Probable Smoker's Carelessness	Phone
77	Barracks 2327	Malfunction of Protecto Wire	Box
78	Barracks 2327	Malfunction of Protecto Wire	Box
79	Bldg. 1212 on Ordnance St.	Probable defective sprinkler head	Phone
80	Barracks 134-A	Protecto Wire activated	Box
81	Barracks 232-B	False Alarm	Box
Alarm	No. Personal Loss	H. W. Loss Total Lo	95
59	<b>\$</b> ·	\$ 5.00 \$ 5.0	
63	5•00	5.0	
66	500.00	500.0	
68	250.00	250.0	
69	50.00		<u>o</u>

#### Minor Investigations:

There were 3 safety and security meetings; 4 inside drills and schools; and 27 outside drills

\$ 810.00

Eighty-seven alarm boxes were tested during the month.

\$ 805.00

Stand-by protection was provided for controlled burning at 11th Street and the Columbia River

Tank truck #949 was put in service.

Auxiliary boxes and horns were tested in Barracks 157.

The Army Firing Range was inspected by Chief Olson and Captain Trosper.

<sup>4-2-52</sup> Trailer at 1212 "N". Stove overloaded with oil. No loss.

<sup>4-7-52</sup> Electric wire at 6th and "M". Electrical fire scare. No loss.

<sup>4-15-52</sup> Bremerton House at 800 mcm. Improperly operated oil stove. No loss.

<sup>4-25-52</sup> Barracks 6209-A. Overheated equipment room. No loss.

An instruction map showing installation of sprinkler valves was installed in the Hospital.

ces 126, 123 and 135 were converted to Master Boxes.

Auxiliary box in 150 series Pasco Barracks and auxiliary boxes on Master Box 513, 521 and 525 were tested. Barracks are in service with Protecto wire.

This Unit assumed landlord responsibilities for Fire Building effective April 1.

#### NORTH RICHLAND COMMERCIAL FACILITIES UNIT

Snack Bar

Effective April 1, the North Richland Commercial Facilities landlord responsibilities were assigned to 700-1100-3000 Area Services Section.

The following North Richland Commercial Facilities were in business during April, 1952:

#### Privately-Owned Buildings Government-Owned Buildings B & R Super Service Cannon Service Company Seattle 1st National Bank - Area Office Food Lines, Inc. Hand's Buy-Rite Drugs Naimy's Barber Shop Dres-Well Cleaners & Laundry Herman's Men's Store North Richland Ice Delivery Phillips' 66 North Richland Trailer Coach North Star Theater Supply Co., Inc. Nationwide Food Service, Inc.

North Richland Tavern
U. S. Post Office

actric motors in Commercial Facility Government-owned buildings have now been in service approximately four years. In general we have found it more economical to replace the motor upon major failure rather than recondition it.

A Work Order Control Procedure has been worked out with North Richland representatives of AEC which we believe will give us cost controls by operation. It is hoped that this system will provide data which can be used for comparison cost studies.

An Assignment and Acceptance of Contract was executed, effective January 23, 1952, transferring the partnership of Brenner and Milnor to Milnor, Bargreen and Folsy.

The Washington State Liquor Control Board issued a warning letter to the operator of the North Richland Tavern, Bruce Johnson, dated April 18, 1952. This warning letter was written because of two Liquor control violations occurring on November 23, 1951 and December 22, 1951 respectively. A copy of the warning letter is being forwarded to the Commission for information and records, together with our letter of transmittal.

...

Estimated rental revenue from Commercial operators for the month is \$5,000.

ORGANIZATION AND PERSONNEL	Beginning of Month End of Month		<u>:h</u>			
No. of Employees on Roll	Exempt	Non- Exempt	Total	Exempt	Non- Exempt	Total
'intenance & Steam Operation	8	52	60	8	50	58
th Richland Patrol	6	16	22	6	16	22
th Richland Fire	33		33	33		33
North Richland Commercial Facilities		2	3	1	2	3
TOTAL 1192309	· Tm 648	70	118	48	68	116

## PROJECT & RELATED PERSONNEL APRIL 1952

·	3/31/52	4/30/52
GCVERNMENT		
Civilian Personnel-Atomic Energy Comm. Civilian Personnel G. A. O. Total	437 5 442	447 5 452
RICHLAND VILLAGE PERSONNEL		
Comm. Facilities (Inc. North Richland) Govn. Agencies, Churches, Clubs Etc. Schools Organizations Total	1368 117 431 11 1927	1387 118 431 11 1947
CONSTRUCTION SUB CONTRACTORS		
Atkinson & Jones Newberry Neon Urban Smyth Warren Company Vitro Corp. of America (Kellex Corp.) Erwin Const. Co. J. P. Head V. S. Jenkins Sound Const. & Engr. Company	4578 387 1194 107 1 3 50	3977 389 1111 94 0 0 31
J. G. Shotwell West Coast Heating & Plumbing Company Electric Smith Inc. L. H. Hoffman	9 18 15 8	10 0 7 6 1
Stier, Shelton & Schick Charles T. Main The Bay Company Holliday & Edworthy Puget Sound Naval Shipyard	210 58 4 788	24 64 0 415
Anderson Decorating Co. Soule Steel Company Leland S. Rosener	0 3 3 5	3 0 0
Head Mech. Construction Company Murphy Brothers Buchanan Co., Incorp. S. S. Mullen, Inc. Pittsburg Des Moine Steel Co.	5 5 2 25	0 0 0 36
Chicago Bridge & Iron Co. Automatic Sprinkler Co. of America National Blower & Sheetmetal Co. Emory & Bohm Electric Company	35 1 4 10	33 0 2 0
Associated Engrs.  Haughton Elevator Company  Bumstead-Woolford  Dix Steel Building Co.	26 4 9 5	19 6 16 5 0
E. F. Hauserman Royal Roofing Company	†   <del> </del>	0

CONTINUED ON PAGE # 2

PAGE # 2 CONSTRUCTION SUB CONTRACTORS CONT.

•	3/31/52	4/30/52
√n3 · *		^
D. H. Paving Company	9	0
Jaggar-Sroufe Company	2	),
Portland Wire & Iron	2	4
Pacific Car & Foundry Company	19	. 0
Prepakt Concrete Company	1	0
Washington State College	2	6
American Pipe & Const. Co.	(	1
Arthur Forsyth Co., (Thermostatic Installation Co.)	0	3
Day Brothers Lathing & Plastering Company	0	2
Coates Electric Company	0	<b>2</b> 8
Minnis & Schilling	0	19
Anderson Brothers Inc.	Ô	5
Sprague-McDowell	v	•
TOTAL SUB CONTRACTOR	<u> 7632</u>	<u>6297</u>
GENERAL ELECTRIC TOTAL	8955	8839
· · · · · · · · · · · · · · · · · · ·		
GRAND TOTAL	<u> 18,956</u>	<u>17,535</u>

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MAY 21 1952

700 AREA

CLASSIFIED FILES

