727752

PRIVACY ACT MATERIAL REMOVED

[redacted]

HW 28267-DEL

DECLASSIFIED WITH DELETIONS

Copy No. [redacted]	Series [redacted]
Pages 130	Copies [redacted]

MONTHLY REPORT

HANFORD ATOMIC PRODUCTS OPERATION

FOR

MAY 1953

HANFORD 50787

Classification Cancelled (Change to) DECLASSIFIED WITH DELETIONS
by Authority of RLO-16-4
D S Lewis 3/19/92
D J Hicks 4/9/92
J N Wells 4-10-92

REPOSITORY PNL
COLLECTION Atmospheric Releases
BOX No. 20/21
FOLDER N/A

Compiled By
DEPARTMENT MANAGERS

June 19, 1953

RICHLAND, WASHINGTON

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

CLASSIFICATION REVIEW FOR DECLASSIFICATION BUT LEFT UNCHANGED
By R. H. Beaulieu
Date 5-12-93
U.S. AEC Division of Classification

[redacted]

THIS DOCUMENT IS PUBLICLY AVAILABLE

Route To	Read By	Date
[redacted]		

THIS DOCUMENT HAS BEEN SCANNED AND IS STORED ON THE OPTICAL DISK DRIVE

DECLASSIFIED
[redacted]

PRIVACY ACT MATERIAL REMO

1203788

DECLASSIFIED

COPY NUMBER	DISTRIBUTION
1	F. K. McCune - Yellow Copy
2	K. H. Kingdon
3	K. R. Van Tassel
4	W. E. Johnson
5	C. N. Gross
6	A. B. Greninger
7 - 8	Atomic Energy Commission Hanford Operations Office Attention: D. F. Shaw, Manager
9	Atomic Energy Commission. Hanford Operations Office Attention: J. J. Joyce
10	Atomic Energy Commission For: B. M. Fry, AEC, Washington
11	700 File
12	300 File

[redacted]

TABLE OF CONTENTS

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

Manufacturing Department . . . . . E-1 through E-4
Plant Statistics . . . . . Ea-1 through Ea-6
Metal Preparation Section . . . . . Eb-1 through Eb-8
Reactor Section . . . . . Ec-1 through Ec-10
Separations Section . . . . . Ed-1 through Ed-17

Engineering Department . . . . . F-1 through F-5
Engineering Administration . . . . . Fa-1 through Fa-3
Pile Technology . . . . . Fb-1 through Fb-25
Separations Technology . . . . . Fc-1 through Fc-23
Applied Research . . . . . Fd-1 through Fd-17
Laboratory Engineering and Facilities Unit . . . . . Fe-1 through Fe-11
Design . . . . . Ff-2 through Ff-14
Project . . . . . Fg-2 through Fg-22
Fuel Technology . . . . . Fh-1 through Fh-13

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

Radiological Sciences Department . . . . . H-1 through H-18

Financial Department . . . . . I-1 through I-5
General Accounting Unit . . . . . Ia-1 through Ia-10
General Cost Unit . . . . . Ib-1 through Ib-3
Manufacturing Cost Unit . . . . . Ic-1 and Ic-2
Engineering Cost Unit . . . . . Id-1 through Id-3
Appropriations Section Ie-1
Payroll Unit . . . . . If-1 through If-8
Internal Audit Unit Ig-1

Plant Auxiliary Operations Department
Plant Protection Section . . . . . Ja-1 through Ja-35
Purchasing and Stores Section . . . . . Jb-1 through Jb-10
Transportation Section . . . . . Jc-1 through Jc-6
Electrical Distribution and Telephone Section . . . . . Jd-1 through Jd-6
Statistical and Computing Section . . . . . Je-2 through Je-17

Employee and Public Relations Department . . . . . K-1 through K-40

Community Operations and Real Estate Department L-1
Community Operations Section La-1
Richland Electrical Unit . . . . . Lb-1 through Lb-3
Public Works Unit . . . . . Lc-1 through Lc-3
Recreation and Civic Affairs Unit . . . . . Ld-1 through Ld-3
Richland Public Library . . . . . Le-1 and Le-2
Richland Police . . . . . Lf-1 through Lf-11
Richland Fire . . . . . Lg-1 and Lg-2
Engineering Unit . . . . . Lh-1 through Lh-5
Real Estate Section Li-1
Housing and Real Estate Maintenance Unit . . . . . Lj-1 through Lj-10
Commercial Property Unit . . . . . Ll-1 through Ll-4

1203790

[redacted]

MONTHLY REPORT
HANFORD ATOMIC PRODUCTS OPERATION
MAY 1953
GENERAL SUMMARY

Production Operations

Net production for the month for the Metal Preparation Section was 106 percent of forecast. All of the uranium rod material currently available at Hanford for production was machined into slugs and the machining operation was discontinued as a production facility on May 28, 1953.

Reactor input and reactor output production exceeded all previous records, with reactor input production being 109 percent of forecast and reactor output production 104.9 percent of forecast. The operation of six reactors during a large portion of the month following the conclusion of the Ball 3X outages is primarily responsible for this production achievement. Increases in established maximum operating levels during May were 45 MW at C reactor, 65 MW at D reactor, and 5 MW at F reactor. There were six regular uranium jacket failures during the month; all of these were Group 8. In addition, there were six "C" metal failures and one "J" slug failure.

104 percent of forecast was obtained at each of the following plants: T Canyon Building, Redox, and TBP. UO_3 plant production was 106 percent of forecast. Nine carloads of product were shipped offsite, and operating rates of 15 tons per day were being achieved at the end of the month. The month's commitment of the 234-5 operation was delivered.

Engineering and Technology

The modified "Head-End" $KMnO_4$ procedure was introduced into the Redox plant during the month. First indications of its performance were favorable. Its continuing success would mean that the plant could reduce routinely from three to two uranium cycles. Uranium removal rates from the tank farms were established at new maximums.

Temporary construction on Recuplex, CG-496, began May 1, and construction on various phases of the 300 Area Expansion began during the month. At the 100-K Area facilities, work continued on concrete placement. Design progress on the 100-K Reactor Facilities advanced to 85.7% completion.

Findings by the Radiological Sciences Department included a continuation of high reactor effluent activity, the observation of significantly contaminated sport fish above the reservation, and substantial emissions of particles, mainly contaminated with ruthenium, from the Redox stack.

Personnel and Services

Reductions totaling $2,088,000 were made in the revised budget for the Fiscal Year 1954 in accordance with changes recommended by the Office of the Director of the Budget, and corrected schedules were submitted to the Atomic Energy Commission on May 15.

There were no lost time injuries during May. Two injuries during the month of March were reclassified to major injuries, making a total of seven major injuries for 1953.

Agreements with the HGU and the BSEIU were executed on May 8, and became effective on May 16, 1953. Formal ratification of the GE-HAMTC Agreement was received on May 28.

The personnel separation rate decreased from 1.35% in April to 1.25% in May. Single employees, as well as female heads of families, were made eligible for Wherry Act housing certification. The total number of housing applications pending is 693.

[redacted]

DECLASSIFIED

SECRET
DECLASSIFIED

STAFF

General Manager, Atomic Products Division	F. K. McCune
General Manager, Hanford Atomic Products Operation	W. E. Johnson
Manager, Schenectady Office	B. R. Prentice
Assistant to the General Manager, Technical	W. I. Patnode
Manager, Administrative Practices	W. K. MacCready
Counsel	G. C. Butler
Manager, Finance	W. W. Smith
Manager, Employee and Public Relations	G. G. Lail
Director, Radiological Sciences	H. M. Parker
Director, Medical	W. D. Norwood, MD
Manager, Engineering	A. B. Greninger
Manager, Manufacturing	C. N. Gross
Manager, Plant Auxiliary Operations	H. D. Middel
Manager, Community Operations and Real Estate	L. F. Huck

[redacted]

DECLASSIFIED

HANFORD ATOMIC PRODUCTS OPERATION
NUMBER OF EMPLOYEES
MAY 31, 1953

	EXEMPT		OTHERS		TOTAL	
	5-31-53	4-30-53	5-31-53	4-30-53	5-31-53	4-30-53
Engineering Department						
General	17	15	79	83	96	98
Design	164	162	35	38	199	200
Project	225	215	300	296	525	511
Technical Section						
General	8	5	3	3	11	8
Applied Research	120	124	58	58	178	182
Separations Technology	112	111	26	24	138	135
Laboratory Engineering	48	48	60	59	108	107
Pile Technology	103	105	69	65	172	170
Fuel Technology	56	54	47	46	103	100
Advance Technology	10	7	1	1	11	8
Manufacturing Department						
General	16	16	6	7	22	23
Reactor	243	239	1 012	1 007	1 255	1 246
Separations	309	323	1 204	1 199	1 513	1 522
Metal Preparation	91	87	419	427	510	514
Plant Aux. Operations Department						
General	1	1	-	-	1	1
Electrical Distribution & Telephone	32	32	142	142	174	174
Transportation	45	46	477	478	522	524
Purchasing & Stores	52	53	244	246	296	299
Plant Protection						
Patrol & Security	61	62	474	483	535	545
Safety & Fire	43	43	110	108	153	151
Office Services	23	23	294	300	317	323
Administration Main. Service	11	11	49	56	60	67
Statistical & Computing	38	39	56	55	94	94
Community Operations & Real Estate Dept.	102	104	334	335	436	439
Financial Department						
General	4	4	7	5	11	9
Accounting	45	44	195	200	240	244
Payroll & Auditing	25	26	60	63	85	89
Employee & Public Relations Dept.	50	51	146	160	196	211
Radiological Sciences Department						
General	4	4	3	3	7	7
Records & Standards	27	25	141	145	168	170
Biophysics	61	61	55	56	116	117
Biology	42	42	36	36	78	78
Medical Department	39	41	215	211	254	252
Law	3	3	2	2	5	5
General	15	15	29	30	44	45
TOTAL	2 245	2 241	6 388	6 427	8 633	8 668

1203793

PERSONNEL DISTRIBUTION - MAY, 1953

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	100-K Area	200-E Area	200-W Area	300 Area	700-1100-3000 Area and Plant General	Total
Engineering Department											
Exempt	47	63	-	21	24	19	32	71	252	334	863
Other	20	36	4	49	30	15	12	28	223	261	678
Total	67	99	4	70	54	34	44	99	475	595	1 541
Manufacturing Department											
Exempt	69	68	46	58	-	4	5	293	89	28	660
Other	241	274	364	162	-	-	115	1 077	394	13	2 640
Total	310	342	410	220	-	4	120	1 370	483	41	3 300
Plant Auxiliary Operations											
Exempt	21	10	6	8	7	5	22	18	17	192	306
Other	93	65	106	56	20	-	101	203	116	1 086	1 846
Total	114	75	112	64	27	5	123	221	133	1 278	2 152
Community Operations and Real Estate											
Exempt	-	-	-	-	-	-	-	-	-	102	102
Other	-	-	-	-	-	-	-	-	-	334	334
Total										436	436
Financial Department											
Exempt	-	-	-	1	-	-	-	1	1	71	74
Other	-	-	2	1	-	-	2	1	-	256	262
Total	-	-	2	2	-	-	2	2	1	327	336
Employee & Public Relations											
Exempt	-	-	-	-	-	-	-	-	-	50	50
Other	9	3	3	4	4	-	8	-	19	96	146
Total	9	3	3	4	4	-	8	-	19	146	196
Radiological Sciences Department											
Exempt	1	-	43	-	-	-	2	16	59	13	134
Other	5	-	40	-	-	-	5	14	154	17	235
Total	6	-	83	-	-	-	7	30	213	30	369

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	100-K Area	200-E Area	200-W Area	300 Area	700-1100-3000 Area and Plant General	Total
Medical Department											
Exempt	-	-	-	-	-	-	-	-	-	39	39
Other	1	4	4	1	-	-	1	6	2	196	215
Total	1	4	4	1	-	-	1	6	2	235	254
General											
Exempt	-	-	-	-	-	-	-	1	2	15	18
Other	-	-	-	-	-	-	-	-	13	18*	31*
Total	-	-	-	-	-	-	-	1	15	33	49
Total Exempt	138	141	95	88	31	28	61	400	420	844	2 246
Total Other	369	382	523	273	54	15	244	1 329	921	2 277	6 387
GRAND TOTAL	507	523	618	361	85	43	305	1 729	1 341	3 121	8 633

* Includes 6 employees in Schenectady office.

D-2

1203795

[redacted]

MANUFACTURING DEPARTMENT

MAY, 1953

METAL PREPARATION SECTION

The net production for the month was 166 tons which was 106 percent of forecast. This production included 159 tons of 8-inch material and 7 tons of 4-inch material. The machining yield for the 8-inch material was 81.5 percent and for the 4-inch was 68.2 percent.

The canning yield was 35.9 percent for the 4-inch material and 71.3 percent for the 8-inch. The decrease of approximately 5 percent in the combined canning yield is attributed to an increase in the non-seat reject category for 8-inch slugs and a large number of corrosion rejects for 4-inch slugs which occurred on Scoville aluminum cans. The last of these have now been used.

The melt plant produced 31 tons of billets with a yield of 87.5 percent and a solid yield of 95.9 percent.

Four autoclave failures occurred during the month. One was a 4-inch slug and three were 8-inch slugs. Examination indicated that all were caused by defective cans.

The overall canning yield of the enriched slugs for the present P-10 program was 91 percent and for the target slugs was 58 percent. Weld closure is still the major cause of rejection of the latter. Essentially the entire month's production of target slugs was made from recanned Hanford fabricated slugs which were left over from the previous P-10 program.

All of the uranium rod material currently available at Hanford for production was machined into slugs and the machining operation was discontinued as a production facility on May 28, 1953.

REACTOR SECTION

The total reactor input production was 109 percent of forecast and the reactor output production was 104.9 percent of forecast. Both the input and output production exceeded all previous records. The operation of six reactors during a large portion of the month following the conclusion of the Ball 3X outages is primarily responsible for this production achievement.

There was an additional production potential diverted to the P-10 program at DR making the total diversion about 25 percent of DR production potential at month end. The P-10 production was 94.2 percent of forecast.

DECLASSIFIED

1203796

DECLASSIFIED

REACTOR SECTION (Continued)

Increases in established maximum operating levels during May were 45 MW at C reactor (including 10 MW of "C" metal burnout), 65 MW at D reactor, and 5 MW at F reactor.

There were six regular uranium jacket failures during the month, plus six "C" metal and one "J" slug. Total outage time for slug rupture removal was 100.3 hours for the regular pieces, and 3.7 hours for the "C" and "J" pieces.

During May, the reactors experienced a total of 42 panellit scrams. The lost time attributed to these outages was 41.5 hours. In connection with the changing of the H reactor orifice pattern, 28 of the overall total of 42 panellit scrams was experienced in this area. A total of 27.9 hours was lost at the C reactor due to a horizontal rod hose becoming wedged between the track and the motor drive.

SEPARATIONS SECTION

A total of 17 runs was started in the T Canyon Building and the production was 104 percent of forecast. The redox plant produced 104 percent of forecast.

The Redox plant operated at an average operating rate of 4.5 tons per day with an efficiency of 85 percent. Major lost time was attributed to (1) a stuck feed valve to the 1-S column and (2) failure of the steam coils in the D-12 evaporator for the third time since startup. During the latter part of the month decontamination, augmented by a new head-end treatment, improved to such an extent that the second uranium cycle was bypassed. The entire operation was shut down on the last day of the month to do as much as possible of the Phase I and Phase II equipment changes and to replace the D-12 tank.

The TBP plant produced a net of 218 tons of UNH. This was 104 percent of forecast. During the first part of the month the rates were curtailed by insufficient feed material and this was followed by a period when the uranium concentration in the feed material was low. Production was accelerated at month end with the A-line on 7.2 tons and the B-line on 6.4 tons per day operating rate.

The UO_3 plant operation was satisfactory with rates dependent upon the amount of feed available. The month's production was 319 tons or 106 percent of forecast. Nine carloads of product were shipped offsite. Operating rates of 15 tons per day were being achieved at the end of the month.

Generally, the sluicing activities progressed with good results in all tank farms. Two tanks were declared empty of metal waste, 101-C and 101-U. There was one Nagle pump failure during this period. Other major incidents that hampered full scale waste removal operations were: (1) the gross contamination of the building and the surrounding area at 241-UR caused by inadequate agitation of a blend batch; and (2) failures of seals on the 241-UR slurry accumulator pump. A total of 164 hours of lost time was attributed to these two items.

[redacted]

1203797

[redacted]

SEPARATIONS SECTION (Continued)

The month's commitments of the 234-5 operation was delivered. No processing was done in the RG line.

The work on the reactivation of 108-B was slightly behind schedule at month end. Such items as the building ventilation, the fresh air equipment for air masks, and the important power equipment were overhauled and placed in operating condition.

GENERAL

Personnel

Total on Roll May 1, 1953	3308
Accessions	41*
Separations	48*
Total on Roll May 31, 1953	3301

*Does not include intra-department transfers.

C. N. GROSS, MANAGER

MANUFACTURING DEPARTMENT

[redacted]

1203798

HW-28267

[redacted]

MANUFACTURING DEPARTMENT

PATENT REPORT SUMMARY
FOR
MONTH OF MAY, 1953

Richland, Washington
June 11, 1953

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

Inventors	Title
L. A. Carter, Reactor Section M. M. Cox, Reactor Section	Detecting and Locating Radioactive Gas Leaks.

C. N. GROSS, MANAGER

MANUFACTURING DEPARTMENT

DECLASSIFIED

1203799

DECLASSIFIED

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED

WITH DELETIONS

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED

1203003

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED

[redacted]
DECLASSIFIED
WITH DELETIONS

DECLASSIFIED
WITH DEL

[redacted]

DECLASSIFIED
WITH DELETIONS

Richland, Washington
June 10, 1953

MANUFACTURING DEPARTMENT
METAL PREPARATION SECTION
MAY, 1953

I. RESPONSIBILITY

Responsibility for instrument maintenance functions in the 700, 1100 and 3000 Areas was transferred to the Plant Auxiliary Operations Department on May 25, 1953. Two craftsmen were involved in the transfer.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

	May	April	Year to Date
Bare Pieces Machined (4")(Tons)	3	1	52
Machining Yield (4")(%)	68.2	77.6	81.6
Bare Pieces Machined (8")(Tons)	42	91	460
Machining Yield (8")(%)	81.5	82.7	82.2
Total Pieces Machined (Tons)	45	92	512
Acceptable Pieces Canned (4")(Tons)Gross	7	14	104
Acceptable Pieces Canned (4")(Tons)Net	7	13	101
Canning Yield (4")(%)	35.9	60.5	62.8

1203806

DECLASSIFIED

1. Statistics (Continue

	May	April	Year to Date
Acceptable Pieces Canned (8")(Tons)Gross	160	147	710
Acceptable Pieces Canned (8")(Tons)Net	159	146	702
Canning Yield (8")(%)	71.3	73.6	69.9
Total Acceptable Pieces Canned (Tons)Gross	167	160	814
Total Acceptable Pieces Canned (Tons)Net	166	159	803
Acceptable Pieces Canned (4" and 8") (% of forecast)	106	102	104
Autoclave Frequency (4")(No./M)	.14	.00	.03
Autoclave Frequency (8")(No./M)	.07	.00	.03
Briquettes Produced (Tons)	13	14	84
Chip Recovery Yield	87.1	84.5	85.1
Billets Produced (Tons)	31	31	255
Melt Plant Billet Yield (%)	87.5	86.2	85.7
Melt Plant Solid Yield (%)	95.9	96.0	95.7
Oxide Burned (Weight out Tons)	3	3	28
Poison Canned (Number Pieces)	0	0	4450
Chemical 68-56 Canned (Number Pieces)	0	0	0
Chemical 10-66 Canned (Number Pieces)	0	0	1449
"J" Slugs Canned (Number Pieces)	2709	3091	8663
"N" Slugs Canned (Number Pieces)	3503	4336	9248
Special Requests (Man hours)	2384	1410	7841
305 Routine Tests (Man hours)	127	128	697
305 Special Tests (Man hours)	1634	1635	5461
Average Steam Generated (M lbs/hr.)	20.3	24.7	
Maximum Steam Generated (M lbs/hr.)	30.0	41.0	
Total Steam Generated (M lbs.)	15,200	17,900	
Coal Consumed (Tons)	1023	1158	
Sanitary Water from 3000 Area (Million gals.)	41.4	40.2	
Total Water Average Rate (gpm)	926	930	
Chlorine Residual (ppm)	.40	.39	

2. Activities

All of the uranium rod material available at Hanford for production was machined into slugs and the machining operation discontinued as a production facility. In addition, 29 tons of large diameter rods were machined into special size slugs for the exponential test pile program. It is planned that the exponential slugs will be returned for drilling during June and July.

The net production of slugs was 166 tons of which 96% were eight-inch. A decrease of approximately 5% in the combined canning yields is attributed to an increase in the non-seat reject category for eight-inch slugs and a large number of corrosion rejects for four inch slugs. The excessive corrosion rejects for four inch slugs occurred in Scoville cans which have been set aside as being unsuitable for regular canning.

1203807

2. Activities (Continued)

Analysis of four autoclave failures (one four inch and three eight inch) which occurred during the month, indicate that all were caused by defective cans.

Melt plant yields continued at a high level.

Bare slug inspection of material received from Fernald has shown less than one percent of this material fails to meet bare slug specifications. The primary cause for rejects has been seams and metal quality defects with very few dimensional defects having been found. To take advantage of 100% off-site inspection, a statistical sampling plan for dimensional inspection has been applied to all Fernald material. Metal quality (pickle) inspection of all material is still on a 100% basis.

In a further attempt to reduce the incidence of AlSi rejects 180 eight inch cans with a 1/4 inch knurl near the top were used for canning. The knurled area helped prevent penetration of AlSi between the can wall and the sleeve. Only three AlSi rejects occurred during the test and these were made by purposely employing improper quench technique.

3. Special Operations

The entire months production of lithium alloy target slugs was made from recanned Hanford fabricated slugs which were left over from the previous P-10 program as production commitments could not be met with the outside supply of the alloy. A total of 3503 acceptable slugs were canned with an overall canning yield of 58%. Weld closures still remain the major cause for rejection.

A total of 2709 acceptable enriched aluminum alloy fuel slugs were canned with an overall canning yield of 91%. Approximately 200 reject bare slugs were recovered as a result of a slight revision to the specifications for minimum bare slug diameter.

Experimental work on mechanical stripping of aluminum cans from reject canned uranium slugs with the Medart rod straightener is continuing. Preliminary results indicate that there are no dimensional changes of the slugs; however, there is some burring at the end of the slug which, it is believed, can be corrected by proper adjustment of the machine.

4. Schedule Variance

Canning production was 106% of forecast largely as a result of reduction of in-process carry over from the past month.

Billet production exceeded forecast by 7%.

[redacted]

DECLASSIFIED

1203008

DECLASSIFIED

B. Equipment Experience

1. Operating Continuity

Two and one half hours production time on the canning lines was lost on May 16 when it became necessary to shutdown the furnaces due to an obstruction in the process sewer causing water to back up into the furnace pits. A large rock and accumulated debris were removed from the sewer.

The X-ray tube failed on the radiograph machine and was replaced by one on loan from Seattle. The tube failure resulted in five days lost time in radiograph testing of target and fuel slugs for the P-10 program.

2. Inspection, Maintenance and Replacements

All equipment damaged by the fire in the slug recovery room was placed in operable condition. Approximately 60% of the storage platform was replaced and all equipment and steel work in the room was painted.

A test was made with the emergency generator to determine steam requirements under full load conditions. The turbine came up to speed with 8,000 lbs/hr. of steam and idled with 6000 lbs./hr. It picked up a 650 kilowatt load in five seconds with a total steam consumption of 38,000 lbs./hr.

C. Improvement Experience

1. Production Tests

PT-313-105-10-M "Fabrication and Irradiation of Triple Dip Slugs Canned in an AlSi Bath with Impurity Levels Above Normal" (HW-26860). All fabrication was completed during April. This month all slugs were radiographed and this inspection indicates that the material is comparable with normal production.

PT-313-105-14-M "In Pile Evaluation of 63S Aluminum Process Tubes and Jacketed Slugs" (HW-27204).
This material was fabricated in April, tested this month and 330 slugs are ready for shipment.

PT-313-105-17-M "Irradiation of 63S Aluminum Jacketed Slugs" (HW-27205). A total of 1705 acceptable slugs were fabricated under this test during April and testing was completed during the month. No unusual results were noted except for welding difficulties. The lead dip portion of this test is awaiting start up of the lead dip line and receipt of additional cans.

PT-313-105-16-M "Evaluation of Diversy 514 as an Etchant in the Aluminum Component Cleaning Process" (HW-27550).

[redacted]

1203809

1. Production Tests (Continued)

This test was run during the entire month and appears superior to phosphoric acid as an etchant. No difficulties in wetting in the AlSi have been experienced so far.

PT-313-105-19-M "Irradiation of Triple Dip Canned Uranium Slugs from Rods Rolled at Fernald" (HW-26851).
Canning is about 60% complete on this test. About 51,000 slugs have been shipped to Reactor. Canning yield to date is about 74% which compares favorably with Simonds rolled material.

2. Process Tests and Revisions

A clamp was designed to prevent the swinging action of autoclave baskets while being transported on high-lift trucks. This is expected to reduce the marred surface rejects which were caused by this operation.

3. Inventions and Discoveries

Personnel in the Metal Preparation Section engaged in work which could be expected to result in inventions or discoveries advise that to the best of their knowledge and belief no inventions or discoveries were made in the course of their work during the period covered by this report.

D. Events Influencing Costs

1. Labor Variance

No significant change.

2. Material Variance

The cost of process materials decreased slightly in May over that experienced in April when the unit cost was adversely affected by abnormal carry-over of canned slugs in process.

3. Other

Other costs increased slightly due to maintenance costs being unusually low during the previous month.

E. Plant Development and Expansion

1. Project Status

Project CG-481 - "Equipment for 8 Inch Slug Manufacture".
Work on this project was physically completed on May 26, 1953. Unloading equipment installed in both shipping vans has been submitted

[redacted]

1203010

DECLASSIFIED

1. Project Status (Continued)

to test and performs satisfactorily. The project was formally accepted on May 29, 1953 and the completion notice is being prepared.

Project CA-514 - "Expansion of 300 Area Production Facilities". Work Authority No. CA-514 (4) was received and has authorized the Company to proceed with additional work around the 313 Building. This includes installation of a switch for the railroad spur and moving rails and accessories from various plant locations to the vicinity of the 313 Building. The total authorized funds ($600,000) for AE and AEM functions to be performed by the Company remains unchanged.

The scoping of the 313 process facilities is about 96% complete and detailed design 29%. A contract for the first phase of construction on the 313 Building was awarded to L. H. Hopkins on May 27, 1953. This contract covers the construction of foundations, building shell and utilities at a cost of $243,575. Preliminary site work and installation of a new process sewer by Minor Construction is being expedited to allow the contractor to start work in early June.

Construction of the new operations change house is approximately 5% complete. The concrete footings have been poured and work is progressing on foundations and underground piping.

IR-135 - "Low Frequency Induction Furnace". The acceptance notice was issued on May 29, 1953 and completion notice is being prepared.

2. Plant Engineering

The cost standard manual is being revised to clarify purpose, definition and application. Direct labor standards for canning and inspection were revised to reflect current operating conditions.

The design of the bronze agitator was revised for use on the AlSi dip furnace. Further design changes are being made to permit the use of the same type of agitator in the lead dip process.

Work is continuing on the design of a de-burr and stamping unit for canned slugs. In support of the expansion program preliminary details are being prepared for altering the resistance type canning furnaces so they may be removed for overhaul using an overhead monorail and hoist.

A metal container for the storage of bare slugs is being fabricated that will provide additional radiation protection and facilitate handling and storage of bare slugs.

F. Significant Reports

1. Routine

[redacted]

1203011

Number	Title	Author	Date
HW-27926	Metal Preparation Section Evaluation of FMPC Material March-April 1953.	S.M. Gill	4-23-53
HW-27927	Monthly Report, Process Sub-Section Metal Preparation Section, April 1953.	E.W. O'Rorke	5-1-53
HW-28167	Metal Preparation Process Committee Minutes of Meeting, May 15, 1953.	R.C. Aungst	5-25-53

2. Non-Routine

HW-28006	Trip Report April 27-May 3, Discussion of Slug Manufacturing with National Lead Co. of Ohio at the FMPC, Fernald, Ohio.	S.M. Gill	5-7-53
HW-28020	Report of Process Experience Gained by the Ultrasonic Testing of Lead Dip Canned Slugs for Transformation.	D.L. Cornell	5-11-53
HW-28044	Interim Report No. 2 on P-10 Slug Production, May 1, 1953.	H.G. Henry	5-1-53
HW-28091	P-10 Alloy Sample Exchange Program	E.W. O'Rorke	5-15-53
HW-28048	Final Report on Results of Fluxing the AlSi Canning Pot in the Hanford Triple Dip Process.	R.C. Aungst, C.H. Pitt	5-6-53
HW-22556	Mfg. Dept. Process Standards, Metal Preparation Section.	S.M. Gill	4-1-53
HW-27843	Six Man Crew for Slug Canning.	R.D. Gilbert	5-5-53
HW-27937	Suspected Discrepancy of SF Material Classified as "G" Scrap in the Test Reactor Balance Area.	F.E. Jochen	5-8-53

III. PERSONNEL

A. Organization

No change.

B. Force Summary

[redacted]

1203812

	Start of Month	End of Month	Net Change
Section General	4	4	0
Operations	212	210	- 2
Power & Maintenance	248	246	- 2
Process	29	29	0
Plant Engineering	19	19	0
Radiation Monitoring	3	3	0
Section Total	515	511	- 4

C. Safety Experience

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

D. Radiation Experience

Two exposures in excess of 300 mrep per week were recorded by badge film during the month. An exposure of 480 mrep per week was attributed to processing material from non-standard containers, lingering near large amounts of process material and improper wearing of personnel meters. An exposure of 335 mrep was recorded during a "badge week" that ends on Friday, although he did not exceed the limit for a calendar week.

E. Personnel Activities

1. Visits and Visitors

J. W. Nageley visited Bouillon and Griffith, Architectural Engineers, Seattle, Washington, on May 11 and 12 to review detailed design of 313 Building under Project CA-514.

2. Training

H. G. Henry and L. T. Hagie spoke at two separate meetings for 200-W Area Analytical Laboratory personnel on the 300 Area process.

Continuing the series of training meetings during the month, O. F. Beaulieu of the 200 Area spoke on "Operations in the 200 Area."

DECLASSIFIED

1203813

DECLASSIFIED

Richland, Washington
June 10, 1953

MANUFACTURING DEPARTMENT
REACTOR SECTION
MAY, 1953

I. RESPONSIBILITY

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

II. ACHIEVEMENT

A. Operating Experience

May was the highest production month on record for the Reactor Section. Input production for plutonium exceeded the previous record, established in December, 1952, by 8.0 percent; forecast was exceeded by 9.1 percent and April production by 16.5 percent. Additional production potential diverted to the P-10 Program at DR Reactor amounted to 20.3 percent of this reactor's total production. Operation of six reactors a larger portion of the month following conclusion of the last of five Ball 3X outages is primarily responsible for the production achievement. Reactor output production was 104.9 percent of forecast, representing another production record. P-10 input production at DR Reactor was 94.2 percent of forecast.

Increases in established maximum operating levels during May were 45 MW at C Reactor (maximum level included 10 MW of "C" metal burnout), 65 MW at D Reactor and 5 MW at F Reactor.

The H Reactor Ball 3X outage, begun on April 5, was concluded on May 9 following satisfactory completion of this and other project work.

There were six regular slug failures during May; all were four-inch slugs. In addition, six "C" metal and one "J" slug failure occurred. Total

[redacted]

1203814

A. Operating Experience (Continued)

outage time for ruptured slug removal was 104.0 hours, including 3.7 hours for C and J material.

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

1. Statistics

	B	C	D	DR	F	H	Total or Average
Reactor Time Operated Efficiency (%)	93.4	81.1	90.1	80.4	92.8	65.8	83.9
Reactor Outage Time (Hrs.)							
Plutonium Production	29.0	130.7	44.1	101.1	52.3	236.6	593.8
Special Irradiations and Tests	19.5	9.5	29.9	44.7	1.1	18.1	122.8
Electrical Power Supply*	0.3	0.7	-	-	-	-	1.0
Total	48.8	140.9	74.0	145.8	53.4	254.7	717.6
Reactor Unscheduled Outage Time (Hrs.)	1.6	122.3	1.8	4.3	24.0	13.1	167.1
Metal Discharged (Tons)	17.76	37.00	26.46	51.83	30.59	20.71	184.35
Water Quality (ppm Iron)							
Raw Water Average	0.28	0.21	0.31	0.45	0.18	0.32	--
Raw Water - Maximum	0.53	0.37	0.58	0.88	0.38	0.71	--
Process Water - Average	0.023	0.009	0.007	0.009	0.009	0.018	--
Process Water - Maximum	0.035	0.020	0.017	0.018	0.023	0.035	--
Water Pumped (MM gals.)							
Bldg. 190 to Reactor	1594	2930	1907	1695	1648	1637	11411
Bldg. 182 to 200 Areas	384	-	-	-	-	-	384
Bldg. 181	5610		4344		1972	1915	13841
Steam Generated (MM lbs.)	143		212		123	82	560
Coal Consumed (Tons)	8972		13670		8008	5312	35962

*A transformer was tripped out by faulty operation of a differential relay during switching at Building 151-B Sub-Station on May 5.

2. Activities

The H Reactor resumed operation on May 9 concluding the outage, begun on April 5, for installation of the Ball 3X system. A summary of major work completed during the outage was given in this report for the month of April. This completed the provision of Ball 3X facilities for all reactors.

A rear face pigtail survey at D Reactor on May 13 following a panellit scram, led to discovery of a process tube having no rear dummy charge. This tube which had been charged since startup was pushed. The metal

2. Activities (Continued)

apparently had only recently shifted downstream. Subsequent investigation revealed that this was the only DR Reactor tube without a rear dummy charge.

A calibration test of the process water metering system for D Reactor on May 13 revealed that the water flow and power level were 2.6 percent higher than indicated. Appropriate instrument adjustments resulted in an indicated power level increase of approximately 15 MW.

Failure of a transformer during switching at the Building 151-B Sub-Station on May 5 resulted in short outages at B and C Reactors. Half of the process water pumps at Building 190-B and 80 percent of those at 190-C went off the line during this incident. Back-up facilities satisfactorily provided process water to the reactors.

During the month, irradiation of P-10 material at DR Reactor continued and the second and part of the third of a total of four scheduled groups of tubes were charged with the appropriate loadings. At month end, a total of 737 tubes was being irradiated and was utilizing 25.5 percent of the DR Reactor power level.

The following tabulation indicates activities during May associated with special irradiations other than the P-10 program noted above.

	Tubes Charged	Tubes Discharged	Casks Shipped
Chemical 10-66	5	3	0
Chemical 72-60	6	10	0
RALA	0	4	1
Production Tests	16	30	4
Total	27	47	5

B. Equipment Experience

During May, 42 reactor scrams occurred. Twenty-eight of these were panellit scrams, 17 of which occurred at H Reactor in a 72 hour period immediately following the Ball 3X outage and as a result of panellit work for Process Test MR-105-12, "Operation of H Reactor With Maximum Protection from Panellit System." Eight scrams were caused by Beckmans due to miscellaneous electrical difficulties and a series of six scrams by an improperly operating vertical rod at D Reactor. The above scrams resulted in a total reactor outage time of 70.2 hours, including a 27.9 hours outage at C Reactor when a horizontal rod hose became wedged between the track and the motor drive, and another 25.9 hours outage at C Reactor during which a previously indicated ruptured slug was discharged.

No significant difficulty was experienced with failure of solenoid coils on the Ball 3X hopper door electrical circuits after completing the program for reducing coil voltages started in April.

DECLASSIFIED

1203016

B. Equipment Experience (Continued)

Five of the oil coolers for the Building 190-C 3500 hp process pump motors have recently had tube failures which permitted loss of oil into the cooling water system. Four of these failures occurred during May and were corrected by blanking off the tubes.

Process pump motor No. 8 at Building 190-DR failed during a routine startup on May 28 and was replaced with a spare unit.

Horizontal rod No. 2 at B Reactor is out of service at month end due to a leak in the thimble. Repairs will be made during a subsequent outage.

One Power House boiler in each of the four 100 Areas was inspected by a Traveler's Insurance Company representative, initiating the annual boiler inspection program for 1953.

In connection with changing the H Reactor orifice pattern during the Ball 3X outage, considerable unanticipated panellit gauge work was necessary - because numerous Bourdon tubes broke away from their mounting brackets at the soldered connection. This difficulty resulted from a planned change in the operating range of these gauges.

One of the two revolving river water intake screens at Building 181-C was damaged on May 29 by what appeared to be an explosion in the intake well. The incident was referred to the appropriate groups for investigation. The remaining screen provides adequate capacity to maintain normal water supply pending completion of the necessary repairs.

C. Improvement Experience

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

PT-105-513-E (100 Areas Process Water Quality Evaluation Tests)
Water treatment as outlined in this test continued during May. Supplement A of the test was placed in effect at Building 183-DR on May 19. This supplement is designed to establish the effect of chlorine on process tube and slug corrosion as well as on water treatment.

PT-105-529-A (Ink Facility)
Results of a reactivity test of this DR Reactor facility at full strength (10 percent solution) were inconclusive due to shadowing by temporary poison tubes.

PT-105-531-A (Enrichment at H Pile)
Three tubes of "C" metal were discharged during the month due to indications of slug failures. Inspection

[redacted]

1203817

C. Improvement Experience (Continued)

revealed two ruptured slugs in each of the three tubes. The number of "C" metal tubes in H Reactor remains at 48.

PT-105-533-A (Local Controlled Increase in C Pile Tube Powers)
The C Reactor is currently limited to a tube power of 600 KW except as provided in this Production Test. During the month, the established maximum operating level was increased 45 MW. Approximately 50 test tubes operated at tube powers between 660 and 690 KW.

PT-105-534-A (D Pile Operation with Maximum Panellit Monitor Protection)
Most of the 65 MW increase in established maximum operating level of D Reactor during May was attributable to this test.

PT-MR-105-8 (Discharge of Ruptured Slugs Within Allowable Scram Recovery Time.)
Two attempts were made to utilize the equipment for "fast" discharges during the month. The first was in connection with a ruptured slug at C Reactor and would apparently have been successful had the charge not been stuck. The second attempt, at DR Reactor, was discontinued when three irradiated dummies washed onto the front elevator from the open P-10 tube. A supplement to this Process Test is being prepared to investigate reactor water flow characteristics involved in this incident.

PT-MR-105-10 (Filter Tests - 100-B Area)
This test has demonstrated the feasibility of operating water filters at 3.7 GPM per sq. ft. using the ferric sulfate water treatment process.

PT-MR-105-12 (Operation of H Reactor with Maximum Protection from Panellit System)
This test, which is similar to PT-105-534-A above, was inaugurated at H Reactor following completion of the necessary orifice and panellit changes during the Ball 3X outage. A number of scrams resulted from panellit gauge difficulties following startup; however, no unusual difficulty from this source was being experienced at month end.

One new and two revised Reactor Operating Standards were approved during May which (a) incorporated boiling consideration delta T limits for the 0.313 orifice zone at DR and H Reactors, (b) permit enriched and DR-10 charges to be shortened and (c) specify conditions governing the handling of unirradiated

[redacted]

1203818

C. Improvement Experience (Continued)

enriched slugs. One new and several revised Reactor Cooling Water Standards were approved to accommodate the specification of sodium dichromate as an additive to process water.

The report of invention indicated below was submitted by Reactor Section personnel during May.

Inventors	Invention
L. A. Carter M. M. Cox	Detecting and Locating Radioactive Gas Leaks.

D. Events Influencing Costs

A program for controlling peak electrical power demands was inaugurated on May 12. This involves curtailment of electrical power consumption upon the approach of higher peak demands which otherwise could lead to increased electricity costs over the following year.

It is anticipated that water treatment chemical costs and coal costs increased approximately $35,000 each during May. Principal reason for the apparent increase in coal cost was the higher water demand for the reactors. Higher water demand at H Reactor along with a full month of sodium dichromate charges and additional chemicals required for water flocculation in other areas because of seasonal water conditions account for the higher chemical costs.

The above changes coupled with higher production, a decrease in unusual maintenance and an increase in costs absorbed by the P-10 program are expected to result in a 20 percent reduction from April in the Reactor Section irradiation (plutonium) unit cost.

E. Plant Development and Expansion

1. Project Status

The most significant Reactor Section project activity is reported below. Further details concerning projects may be found in the report, "Status of Reactor Section Projects, Informal Requests and Budget Items," F. A. R. Stainken to E. P. Lee, dated May 20, 1953.

CA-431 (100-C Plant)
Minor Construction forces started installation of the automatic back-wash system at Building 183-C on May 18. Except for minor items, work on this project is awaiting authorization of funds from the AEC.

CA-438 (Ball 3X Facilities for B, D, F, DR and H Piles)
Information concerning this project is given above under "Operating Experience".

[redacted]

DECLASSIFIED

1203319

1. Project Status (Continued)

CA-512 (100-K Facilities)
Reactor design is approximately 86 percent complete and Water Plant design 66 percent. Over-all project construction is estimated at 13 percent completion. Major shielding walls have been poured up to a maximum of 53 and 8 feet at KW and KE Reactors, respectively.

CG-481 (Equipment for 8-Inch Slug Manufacture)
CG-482 (Pile and Pile Water Plant Improvements)
These projects were completed during the month. Project CG-481 included provision for handling metal shipments between the 300 Area and 100 Areas on pallets. Project CG-482 covered replacement of the rear face thermocouples and reactivation of the helium system at H Reactor.

2. Plant Engineering

A number of engineering and development studies were active in the Reactor Section during May. The studies are, in general, aimed at decreased costs and/or increased production. Details are given in documents HW-28233 and HW-28261. Several items of interest are reported below.

Work on the study of boiler performance in the 100 Areas consisted of making test runs in 100-B, D and F Areas under normal operating conditions. Excellent heat balances have been made from the data obtained in these runs.

Feasibility studies for increasing the capacity of the Building 190 electric driven pumps continued during May. Additional trip-out tests were made and study was begun to determine the limiting factors on process water flow to the Reactors.

A program establishing sedan pools in the four 100 Areas was completed during the month.

A detailed study of "crash discharge" procedures to protect the reactors following a Grand Coulee Dam disaster was started in May.

A study of 1955 reactor power levels was begun as a basis for a recommendation pertaining to process water requirements.

F. Significant Reports

1. Routine

Monthly operating reports issued for May were:

1203020

1. Routine (Continued)

HW-27932-A	Reactor Section	EP Lee	5-11-53
HW-27952	Operations Sub-Section	JH Warren	5-5-53
HW-27942	Process Sub-Section	RO Mehann	5-1-53
HW-27925	Plant Eng. Sub-Section	FAR Stainken	5-1-53
HW-27961	Rad. Monitoring Sub-Section	PC Jerman	5-5-53
--	Maintenance Sub-Section	EE Weyerts	5-5-53
--	Power Sub-Section	JC McLaughlin	5-4-53

Other routine reports issued during May were:

HW-27857	"Slug Jacket Failures April, 1953"	DL DeNeal	5-7-53
HW-27911	"Production Summary - April, 1953"	ET O'Sullivan	5-4-53
HW-28196	"Status Report of Projects CA-431 and CA-512"	HT Wells	5-25-53
HW-27962	"Reactor Section, Radiation Monitoring Tech. Report for April, 1953"	PC Jerman	5-5-53

2. Non-Routine

--	"Manufacturing Department Standard Operating Procedures - Reactor Section Operations Sub-Section" (Preliminary revision of the former manual).		3-9-53
--	"100 Areas Master Evacuation Plan (Revision)"	EP Lee	5-6-53
--	"190 Pump Tests" (Reports results of Bldg. 190-F process pump capacity tests).	MP Johnson	5-22-53
HW-27945	"Final Report - Process Test MR-105-3 - Evaluation of Larger Crossheader Screen Opening for B, D, and F Reactors"	RR Bloomstrand	5-15-53
HW-25702	"Production Test 105-4-MR - Evaluation of Poison Column Control Facility"	RD Schilling	5-15-53
HW-27969	"Process Change Authorization - Vertical Safety Rods"	RO Mehann	5-5-53
--	"Maintenance Problems with Reactor - Auxiliaries and Instruments"	CB Wagner	5-22-53
HW-27972	"Modification of Charging Procedures for Flattening Columns"	GF Owsley	5-1-53
HW-27823	"Forecast of Reactor Power Levels"	RJ Jaffe	4-29-53
--.	"Recommendations for Overloading 189-D Generating Equipment for Thermal Stress Tests"	WJ Ferguson	5-6-53

[redacted]

1203321

DECLASSIFIED

2. Non-Routine (Continued)

--	"Work Distribution Among Reactor Section Mechanical Shops"	R Willing	5-22-53
--	"Trip Report" (American Water Works Conference)	WR Conley	5-5-53

III. PERSONNEL

A. Organization

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

B. Force Summary

	Beginning of Month	End of Month	Net Change
Section General	3	3	0
Operations	266	267	1
Maintenance	444	444	0
Plant Engineering	26	26	0
Power	411	416	5
Process	38	39	1
Radiation Monitoring	61	60	- 1
Section Total	1249	1255	6

Changes during May consisted of 7 terminations, 2 new hires, 2 deactivations, 3 reactivations, 4 transfers out and 14 transfers into the Section.

C. Safety Experience

One Sub-Major Injury, No. 238, occurred when a rigger fractured a finger at Building 105-C on May 6 while moving barrels for the "Neutrino" project.

Near-Serious Accident No. 53-12 occurred at Building 184-H on May 25 when a pipefitter's sleeve became entangled with a piece of pipe being rotated in a motorized pipe cutter.

The Reactor Section Supervisor Safety Training Program was continued; three meetings were attended by a total of 50 exempt employees.

D. Radiation Experience

There were one Class II and two Class I Radiation Incidents during May. The Class II incident, No. 17, involved overexposure of six of eleven employees on "C" elevator at DR Reactor when three irradiated dummy slugs washed out of a process tube during use of a new "fast" discharge procedure. Further information is contained under PT-MR-105-8, above.

1203322

D. Radiation Experience (Continued)

The two Class I incidents, Nos. 66 and 68, involved unauthorized entry into the Inner Rod Room at F Reactor, and flushing of P-10 pieces from a process tube onto the discharge area elevator at B Reactor due to the inadvertent opening of a new remotely operated tube closure valve. Reports covering the investigation of these incidents may be found in documents HW-28062, HW-28010 and HW-28210. In addition, a general meeting was conducted by the Reactor Section Manager on May 27 to determine corrective action necessary in the over-all radiation hazard control practices of the Section. Findings are being put into effect immediately.

The previously reported high effluent water activity continued during May. The maximum 24-hour dosage was 509 mrep at C Reactor.

E. Personnel Activities

At month end, 21 employees are receiving on-the-job training for engineering or supervisory assignments in the Section; 15 of these are on assignment under the Rotational Training Program.

A great deal of emphasis was placed on employee communication during May. Four general information meetings were held for exempt employees. In two of these meetings, salary plans, organizational aims and job responsibilities were discussed by E. P. Lee while in the other two meetings C. J. Sheeran, of the Union Relations Section discussed the new General Electric-HAMTC Contract. The first of a series of eight weekly meetings for Reactor Section non-exempt employees was held in which FAR Stainken and JH Warren discussed the expansion program and production status, respectively. Also, the Process Sub-Section initiated a series of lectures to acquaint members of the work of other related HAPO groups. At this meeting, E. A. Eschbach of the Fuel Technology Sub-Section discussed development of new and improved reactor fuels.

The Electrical Unit has begun a series of training classes covering circuitry and maintenance problems of the Ball 3X facilities and revised reactor safety circuits.

E. P. Lee visited the Oak Ridge, Savannah River and KAPL sites during the week of May 11 for discussions on plant facility operation.

[redacted]

1203323

DECLASSIFIED

[redacted] DECLASSIFIED

Richland, Washington
June 11, 1953

MANUFACTURING DEPARTMENT
SEPARATIONS SECTION
MAY, 1953

I. RESPONSIBILITY

On May 25, the operation and maintenance of the fifth boiler in the West Area power house was assumed by the Separations Section.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

a. Bismuth Phosphate and Isolation Operations

	May		April	
	Normal	Acid Wash	Normal	Acid Wash
Charges started in Canyon Bldgs.	17	1	13	-
Charges completed in Conc. Bldgs.	15	1	15	-
Special charges - Conc. Bldgs.	35		38	
Charges completed - Isolation Bldg.	149	1	195	0
Average Waste Losses, %	2.1		1.7	
Special Charges - Isolation Bldg.	65		66	
Material balance, %	104.9		107.8	
Yield through Process	102.8		106.1	
Average cooling time (days)	66		56	
Minimum cooling time (days)	56		46	

[redacted]

1203324

b. Redox Operations

	May	April
Equivalent charges started	144.9	189.8 (Record)
Charges completed	159.4	185.7 (Record)
Tons Uranium delivered to storage	118.5	132.1 (Record)
Average Production Rate per operating day, Tons	4.5	5.0
Average Daily Operating Rate for the month, Tons	3.8	4.4
Average Yield, %		
Uranium	98.9	98.1
Plutonium	97.7	97.8
Total Waste Loss, %		
Uranium	.72	.78
Plutonium	1.98	1.62
Average cooling time, days	82	83
Minimum cooling time, days	75	75
Percent down time	15	12

d. UO_3 Operations

	May	April	To Date
Uranium drummed, Tons	319	332 (Record)	2 311
Uranium shipped, Tons	294	318	2 252
Average cooling time, days (Redox)	91	94	
Minimum cooling time, days (Redox)	86	87	
Waste loss, %	1.00	1.07	

e. TBP Operations

	May	April	To Date
Tons received from Metal Removal	235	218	1 194
Tons shipped to UO_3 Plant	218(Record)	195	1 115
Average Production Rate per operating day, Tons	7.45	7.10	

[redacted]

1203825

DECLASSIFIED

DECLASSIFIED

e. TBP Operations (Continued)

	May	April	To Date
Average Daily Operating Rate for the month, Tons	7.10	6.49	
Average yield, %	92.74	94.43	
Total Waste Loss, %	3.45	2.94	
Ratio Waste Volume returned to Volume removed	1.14	1.0	
Percent down time	4.8	8.6	

f. Power

	200 East	200 West
Raw water pumped, gpm	1 496	7 060
Filtered water pumped, gpm	478	1 008
Steam generated, lbs/hr	27 500	165 244
Maximum steam generated, lbs/hr	39 000	219 000
Total steam generated, M lbs.	19 800	118 796
Coal consumed, tons (est.)	1 278	8 957

g. Waste Storage

	Equivalent Tons U
Metal Waste reserve storage capacity - T Plant	154*
1st Cycle reserve storage capacity - T Plant	355
Metal Waste reserve storage capacity - B Plant	159**
1st Cycle reserve storage capacity - B Plant	0
Redox Waste reserve storage capacity	808

*Increase caused by adding 101-U tank to metal waste reserve.

**Decrease due to temporarily using the 106-BY tank for first cycle supernatant awaiting cribbing.

2. Activities

a. Redox Processing

The Redox Plant operated at an average rate of 4.5 tons per day at 85% efficiency. Approximately two days operating time were lost due to a stuck feed valve to the 1-S column, flushing columns, foaming in the waste evaporator, and reworking of insufficiently decontaminated plutonium. The plant was limited to 4 tons per day when the 1-S column was out of service for one week because of the stuck feed valve. Another two days were lost when the steam coil

[redacted]

1203326

a. Redox Processing (Continued)

in the D-12 waste evaporator failed. Improved uranium decontamination resulting from a new head end treatment utilizing potassium permanganate and chromium nitrate made it possible to bypass the second uranium cycle starting on 5-14-53.

b. TBP Processing

During the first part of the month rates were curtailed by lack of feed. Later in the month the uranium concentration of the feed limited production. The last week of the month was particularly successful with A Line (21% by volume TBP extractant) reaching 7.2 tons per day and B Line (12.5% by volume TBP extractant) reaching 6.4 tons per day. Decontamination was generally satisfactory although earlier in the month significant production time was lost due to the necessity for reworking several batches of product.

c. UO_3 Processing

Operation of the plant was satisfactory with rates dependent upon the amount of feed available. At the end of the month rates of 15 tons per day were being attained. Severe corrosion by UNH was found in the tube bundle and de-entrainment sections of the E-B-1 60% UNH evaporators, and is responsible for most of the Fe, Ni, Cr impurities in the UO_3 product.

d. Waste Metal Removal

Sluicing activities progressed with good results in all tank farms during the month. The 101-C tank was emptied of metal waste and placed in TBP waste service. The 101-U tank was emptied of old waste metal and was released to T Plant at the end of the month for refilling with current waste metal. Water was used for most of the sluicing and this production was supplemented by supernatant blends. Only one Nagle slurry pump failed during the month and this was replaced on the same day. Two incidents occurred at the U farm which seriously hampered production during the first part of the month. Four days production were lost when overpressure in a blend tank caused by blending without agitation forced liquid out of it and grossly contaminated the process vault, the area surrounding it and the control building. Following this seven days sluicing time were lost when the seals of the slurry accumulator pump failed. Extremely high radiation levels hampered replacement work. Supplementary production made by blending supernatant from the 109-U tank reduced the actual lost production.

e. 234-5 Processing

The May commitment of final shapes was produced and delivered to the AEC. No processing was done in the RG Line during the month and all

1203327

DECLASSIFIED

e. 234-5 Processing (Continued)

of its equipment remained in standby condition. Erratic distribution of chemical 70-58 and high densities of castings resulted in higher than normal reprocessing of material during the month. The number of coating rejects continued to be abnormally high.

3. Special Operations

a. Waste Evaporation

Operating data for the 242-B and 242-T waste evaporators for May are as follows:

Evaporator	Gallons Feed	Gallons Sludge	Gallons Condensate	% Volume Reduction
242-T	352 000	240 625	111 375	31.6
242-B	485 375	344 438	140 937	29.0

The feed consisted of first cycle bottoms from previous first cycle waste evaporation. Arrangements are being made to crib all remaining first cycle supernatant in both East and West Areas. It is expected that the 242-T evaporator will complete its first cycle program in June and plans are being made to employ it for the further evaporation of TBP wastes.

b. B Plant Stand-by

All process equipment in B Canyon Building was wetted with water flushes each week. Extensive decontamination work was done in Cells A and D of the Concentration Building with notable success.

Flushes processed through the Concentration Building accomplished a combined product pick-up of 12.93% of a standard run. These solutions were added to the T process as recycle material.

c. Start-up of TX Metal Removal Facilities

Flushing, calibration, and equipment run-in tests have been completed at 241-TXR and the metal removal facility staffed on a four-shift basis in preparation for actuation in June.

d. Manganese Impurity in 234-5 Product

The manganese content of the final product, which last month was running at a high level, has dropped this month to a nearly normal value. Some fluctuation in manganese content was still occurring at month's end, but the level is not critical.

1203328

3. Special Operations (Continued)

e. UO_3 Impurities

Considerable study has been made of the impurity pick-up (primarily Fe, Ni and Cr) across the 60% concentrators. The most promising solution is to reduce the free HNO_3 concentration of the RCU. The necessary designing to allow introduction of a water scrub stream to the RA column is underway. It appears from semi-works development studies at Hanford and experience at Mallinchrodt that improvement should be in direct relation to the free nitric reduction. This step will, however, result in a loss of approximately 530 pounds presently recoverable HNO_3 per ton of uranium to waste assuming complete removal of RCU free nitric acid is achieved.

f. Pu Recovery - 234-5

The equivalent of 53.7 bottles of product from returned metal samples was recovered during May. 58.6 bottles of material were transferred to the Concentration and Isolation Buildings for reprocessing.

Recovery of all stored returned metal samples from the Analytical Laboratory was completed at month-end. Returned metal samples will henceforth be recovered on a current basis.

g. Recovery of Am^{241} for Off-Site Shipment

An average of 55 mg of $Americium^{241}$ per run was recovered in the Isolation Building from 18 runs whose average Americium content was 68 mg.

4. Schedule Variance

The Redox plutonium and uranium productions were both 103% of the amount forecasted in the April Annual Forecast. This was accomplished by postponing a scheduled shutdown for column changes until June. T Plant also produced 103% of the plutonium forecasted for it.

The TBP Plant exceeded April's record production by achieving 104% of the forecast despite the difficulties encountered in the metal removal facilities during May.

UO_3 production was 106% of the forecast.

The 234-5 operation produced its commitment for assemblies.

B. Equipment Experience

1. Operating Continuity

The A line in the TBP Plant was down for 52 hours due to a shortage of feed and in addition its throughput was handicapped by the need for

DECLASSIFIED

1. Operating Continuity (Continued)

reworking out-of-specification product streams. The B line was down for 43 hours through lack of feed and a flush of the RA system.

A total of 164 hours lost time was logged at 241-UR during the month. The chief contributing factors to this lost time were the process blow back of April 30 and the failure of the Johnston sluice pump.

40 hours were lost at 241-CR when changing from 101-C to 102-C sluicing, and due to failure of two sluice nozzles in 102-C.

A total of 30 hours were lost at 241-BXR which can be attributed to failure of a Nagle pump and failure of a sluice nozzle.

2. Inspection, Maintenance and Replacement

a. Nagle Pumps

On May 1, a Nagle Slurry pump failed in the 241-B-101 tank due to a broken shaft at the impeller. This was the only Nagle pump failure during the month.

Decontamination of one Johnston pump motor and one Nagle pump motor was completed during the month in the B Plant Canyon.

b. Slurry Accumulator Pump - U Farm

A slurry accumulator pump in 244-UR-001 developed a seal leak which grew progressively worse until the unit had to be replaced. The seals failed once before on this same pump, but in the previous instances repairs were made by replacing the pump discharge system. This mode of repair could not be repeated because of the high level contamination existing in the "U" Tank Farm; however, the 125 hp motor from this unit was salvaged and will be used on another pump.

c. Sluicing Assemblies

Four failures occurred on sluicing assemblies during the week of May 25. Cause of the failures is believed due to rupture of the hose at the point it passes through the riser into the tank. Four such failures have occurred in the past; however, none had failed since October of 1952 when heavier protective sleeves were provided. Modifications are being made on additional assemblies to eliminate this point of failure.

d. Waste Line Failure

On 5-27-53 the underground header line, which connects the first cycle bottoms storage tank to the 106-B feed tank at the waste evaporator failed. Solution was being pumped from 104 to 106-B at the

1203830

d. Waste Line Failure (Continued)

time of failure and material was observed seeping to the ground surface at the point of rupture. The area was immediately confined and was covered with concrete.

e. 291-U Fans

Repeated difficulty with the 291-U fans is primarily tied to switchgear inadequacy. Complete rebuilding of both #1 and #2 starters has been necessary and the main 440 V feeder breaker has also required extensive maintenance.

f. Filter Bag Failures

There were 4 filter bag failures in the UO_3 Plant during the month. This is a reduction by a factor of approximately 3 from the previous average. This can be attributed to replacing the Nylon stitching with Orlon thread and use of resin impregnated bags.

g. Corrosion of 60% Concentrators in UO_3 Plant

The EB-1 evaporator in the UO_3 Building failed on May 7. Inspection showed four tubes to be leaking, allowing process solution to leak into the steam jacket. One tube was taken out of the tube bundle for inspection and analysis by the Metallurgy group. Nine leaking tubes were blanked off and repairs made to six others. The unit was out of service for approximately 72 hours. The Engineering Department made a thorough inspection of the unit for the purpose of determining corrective measures to cope with the corrosion problem.

h. Bearing Failure - 231 Building Fan

The inboard bearing on the steam driven exhaust fan, 231 Building, developed extreme roughness and noisy operation. On inspection the bearing was found to be damaged from lack of oil and was replaced. Examination disclosed stoppage of the line below the oil reservoir due to sludge. Steps have been taken to prevent a recurrence.

i. Redox D-12 Waste Evaporator Coil Failure

The D-12 waste evaporator in the Redox Plant developed a leak in the plant fabricated coil of such proportions that it had to be replaced. This was the third failure experienced since start-up and because of the frequency of these failures and the time entailed in procurement or fabrication of a replacement a spare evaporator was not available and it was necessary to replace the pot with one of the previously failed units which had a leak of lesser magnitude. The leakage in this case was tolerated by routing the coil condensate to the D-4 condensate evaporator and the unit remained in operation until the

[redacted]

1203831

DECLASSIFIED

i. Redox D-12 Waste Evaporator Coil Failure (Continued)

building shut down at month end. Two programs are underway to effect a replacement - one being to convert the D-4 evaporator to a D-12 type, and a second to fabricate an entirely new unit. It is expected that the conversion can be completed by June 5, 1953, at which time the converted unit will be installed. In the meantime work will continue on the new evaporator which will serve as a spare.

j. Vibration in the Redox Building

A study of vibration in the Redox Canyon building was commenced which revealed that most of the building vibration is originating either in the compressor room or in No. 3 blower room. The present effect of this vibration on the crane optical system seems very minute.

k. Vertical Pumps - TBP Canyon

Five vertical type Johnston deep well pumps failed during the month in the TBP Canyon building. Three of these resulted from boron carbide bearing fractures and the two others were the result of the impellers loosening on the shafts. Repairs or replacements were made in all cases.

l. Fractionator - UO_3 Plant

The reboiler steam coils in TB-4 fractionator developed a leak which permitted HNO_3 to get into the steam condensate. A new set of coils is being fabricated from Type 304 L stainless steel instead of the Type 347 previously used in an effort to increase their life expectancy.

m. Silver Reactors - Redox Dissolver Off-Gas

A study of the tonnage throughputs for T, B, and S Plant silver reactors indicated that the life of the average S Plant reactor was approximately 50% greater than that of the T and B reactor in spite of the higher production and off-gas rates. The longer life of the S Plant reactors is undoubtedly due to the improved heater arrangement and temperature control.

C. Improvement Experience

1. Process Tests and Revisions

a. Glass Bearings For Calcination Pot Feed Pump

Pyrex glass bearings were installed in the Johnston submerged pump in X-19 Tank which feeds hot 100% UNH to the calcination pots. The pump

1203032

a. Glass Bearings For Calcination Pot Feed Pump (Continued)

has been in service three weeks and its performance has been entirely satisfactory. Previously this pump required bearing replacement about once a week when it was equipped with Graphitar bearings.

b. Blending of Feed for the TBP Plant

Blending procedures have been altered in an attempt to send more uniform feed to the extraction building. Blends are being made from a combination of rich supernatant and water sluiced sludge. In the proper amounts this produces a feed having a relative ionic ratio approaching that of HW #4 flowsheet.

c. Elimination of Uranium Cycle in Redox Process

A revised oxidation procedure, utilizing $KMnO_4$ for oxidation and ruthenium volatilization followed by treatment with chromic nitrate for partial dissolution of the resultant MnO_2, shows considerable promise for reduced operating cost and increased plant capacity. The procedure is similar to that previously used except that the partial dissolution of the MnO_2, through reduction to manganous nitrate, reduces the load for centrifugation thereby minimizing the frequency of centrifuge bowl cleanouts. As a result of this procedure the second uranium cycle has been by-passed since May 14th. Decontamination, though erratic, has been sufficient.

d. Combining Reduction and Casting Operations - 234-5

Four reduction-castings were made by the Development Laboratory of the Separations Technology Sub-Section during the month. Three of these castings were processed through the line and were successfully mated. One casting failed to pass specifications and was recycled.

e. Age of Feed for the TBP Plant

One slurry accumulator batch was made at the BXR facilities using supernatant from 101-BX tank with an effective age of 3 1/2 years in combination with much older sludge from the 101-B tank. This material was isolated and run through the extraction building with good results. Further testing is planned for June using both sludge and supernatant from the 101-BX tank to determine if the extraction building can adequately decontaminate this material.

2. Inventions or Discoveries

There were no inventions or discoveries of a patentable nature reported during the month.

D. Events Influencing Costs

[redacted]

1203033 DECLASSIFIED

1. Labor Variance

Total force of the Separations Section dropped by eight, despite an increase of four for the P-10 facility. The Operations Sub-Section force dropped by thirteen.

2. Material Variance

a. TBP Waste Neutralization

As a result of studies made by the Metallurgical group of the Engineering Department, pH control of the TBP waste has been reduced to 8.0 ± 0.5. This should result in significant savings in NaOH and in waste storage space.

b. Nitric Acid for Redox Dissolvers

It has been observed for some time that the consumption of nitric acid in the Redox dissolvers exceeded that in the T Plant dissolvers by approximately 10%. In an attempt to reduce acid consumption, a procedure for semi-continuous acid addition has been tested with preliminary data indicating that a reduction in acid consumption of approximately 8% can be achieved with no increase in time cycle.

c. Reduction of Filter Bag Failures - UO_3 Plant

The Hersey type filter had been failing at a rate of 10 to 12 per month, at a material cost of $120 each. The use of orlon thread plus resin impregnated bags has resulted in only four failures for the first month of their use. This represents a material savings of approximately $700 per month. Labor savings are estimated at an additional $200 per month.

d. Elimination of Second Redox Uranium Cycle

During the second half of May the by-passing of the second uranium cycle resulted in a 15% reduction in chemicals used for the Redox plant and in a substantial reduction in the volume of the waste stored.

3. Other

a. Transferring Redox Wastes

On May 19th a pump was installed to move Redox wastes from the plant to underground storage. This reduces by approximately 3% the storage space required by eliminating the dilution from the steam jet previously used for this transfer.

b. Qualitative Analyses of Chemical Solution in T Plant Concentration Building

About 580 qualitative analyses per month are being eliminated by

[redacted]

1203034

b. Qualitative Analyses ---------- (Continued)

having the Operations Supervisor approve the use of chemical solutions on the basis of simple observation tests made on the samples. The samples are stored for analysis later if process difficulties arise.

c. U Plant Samples

The frequency of RCU samples from the TBP plant was reduced from three to one per week and the tungsten analysis on UO_3 powder was discontinued.

d. 234-5 Laboratory Costs

In the 234-5 Building Laboratory the installation of a new low-pressure regulator on the methane gas lines to the counting instruments will reduce material costs approximately $1500 annually. Rearrangement of the counting instruments coupled with the use of two instead of one geometry discs to calibrate the instruments will expedite work and result in an annual labor savings of approximately $600.

e. 222-S Laboratory Costs

In the 222-S Building a survey of analytical requirements for the various processes, and subsequent agreement by operating personnel to reduction of the sampling load has resulted in an estimated annual labor savings of $6,800.

E. Plant Development and Expansion

1. Project Status

IR-132 HF Line Replacement, 234-5 Building, was completed. Replacements were of Monel pipe. This work is expected to reduce maintenance costs and production losses from unscheduled shutdowns.

It has been estimated that there will be a costly delay of three and one half months in completion of the Redox Phase II Expansion project. Originally scheduled for March 1, 1954, this project is now expected to be completed July 15, 1954. The time lost is attributed to (1) a delay in receipt of funds and (2) a longer procurement period than was estimated in the project proposal. Efforts are being made to expedite the project.

Project CG-538, Redox Waste Line to U Farm and Project CA-539, SX Tank Farm, are both on schedule.

Plant Maintenance Forces started site preparation for the Task I Facility on May 20, 1953.

Installation of the second UO_3 100% Concentrator, E-D-6, has begun. Completion is expected by July 1, 1953.

[redacted]

DECLASSIFIED

1203835

DECLASSIFIED

1. Project Status (Continued)

TBP Stripper design is expected to be completed by June 15, 1953. Installation is expected to be completed in early November.

Field construction work has begun on CA-513-B, additional UO_3 capacity. Estimated completion date of the Luckey Pot installation is October 1, 1953, reflecting a delay of about three months from the original schedule.

During the month work continued slightly behind schedule on reactivation of the P-10 facilities. The building ventilation, the fresh air equipment for air masks, and the vital power equipment were overhauled and placed in operating condition. Dismantlement of the glass lines, and hoods, and removal of the equipment was completed at the end of the month.

2. Plant Engineering

Correlation of data to establish standards for all phases of Separations Section costs is continuing. During the month standards were issued covering operating labor for UO_3 and 234-5, and laboratory labor for the Metal Recovery Unit analytical load.

At the request of the Shop Maintenance Unit, procedures were established for planning and scheduling of all shop work. A Planning & Scheduling Group was organized and will begin to function June 1 under temporary supervision of Plant Engineering.

Total potential annual savings proposed by Separations personnel in the Methods Improvement Program were increased to $216,000 by receipt during the month of a proposal to reduce the RAS scrub stream to 70% of flowsheet value during certain operational periods. This proposal, which had been adopted, is expected to save $160,000 per year.

An economic evaluation was made of a continuous UNH calcination proposal advanced by the Engineering Department for 224-U Building. This evaluation was projected to cover calendar year 1955 conditions and indicated a total annual savings of $68,400. This will not justify the estimated installation cost of $350,000 due to the extended amortization period required.

F. Significant Reports

1. Routine

Number	Title	Author
HW-28254	Separations Section - Operations Monthly Report	V. R. Chapman

[redacted]

DECLASSIFIED

1203336

1. Routine (Continued)

Number	Title	Author
HW-28255	Separations Section - 234-5 Operations Monthly Report	V. R. Chapman
HW-28271	Separations Section - Process Monthly Report	W. N. Mobley
HW-28249	Separations Section - Radiation Monitoring Monthly Report	A. R. Keene
Unclassified	Separations Section - Power & Maintenance Monthly Report	R. T. Jessen
HW-28138	Separations Process Committee Minutes	O. F. Beaulieu
HW-27985	Separations Section Plant Engineering Monthly Report	C. P. Cabell
HW-28293	Essential Materials - Operations Sub-Section Separations Section	J. P. McBride

2. Non-Routine

HW-28043	Separations Section - Waste Status Summary April 30, 1953	D. McDonald by G. K. Carpenter
HW-28115	Operations Schedule-Separations Section May 1953 thru October 1955	D. McDonald
HW-28198	TBP Plant Feed Schedule and Source Data May 26, 1953	D. McDonald & G. K. Carpenter
HW-27774	Decontamination of 221-224-B Process Equipment	M. N. Raile
HW-28090	Results of Radiation Survey of Task II and Task III - RMA Line	E. G. Pierick
HW-27959	Request for Product Specifications - 234-5 Buttons	W. N. Mobley
HW-28088	Conference on Future TBP Program	O. F. Beaulieu
HW-27884	Concentration in S Farm Waste Storage Tanks - P.E. Report #62	V. P. Madsen
P.E. Report #64	Analysis of 231 Power Unit Operations	R. S. Himmelright

[redacted]

1203837

2. Non-Routine (Continued)

Number	Title	Author
HW-28021	Radiation Incident Investigation Class I, #65	D. R. Koberg
HW-28001	Radiation Incident Investigation Class I, #67	J. P. Corley
Report #60	Preferred Equipment Guide	H. C. Copeland, J. F. Kane and M. E. Yates

III PERSONNEL

A. Organization

The Plant Engineering Sub-Section was reorganized internally by plant areas in order to more effectively carry on the major responsibilities for manufacturing engineering and contact engineering. W. P. Nicklason was assigned responsibility for supervising this work for the general plant area, including the shops, boiler houses, etc.

B. Force Summary

	Start of Month	End of Month	Net Change
Section General	4	5	1
Operations Sub-Section	639	626	- 13
Power & Maintenance Sub-Section	571	570	- 1
Process Sub-Section	205	204	- 1
Radiation Monitoring Sub-Section	72	73	1
Plant Engineering Sub-Section	30	31	1
P-10 Extraction Unit	0	4	4
Section Total	1521	1513	- 8

C. Safety Experience

There were no major injuries in the Separations Section during May. The 200-W Operations groups continued their record of no lost time injuries since start-up in 1944 and had reached a total of 4,300,000 exposure hours by the end of May.

On May 5, an employee of the Power and Maintenance Sub-Section sustained a sub-major injury consisting of a fracture to the fifth metacarpel in his right hand when he lost his footing and fell against an air compressor in 271-T Building.

[redacted]

1203038

DECLASSIFIED

C. Safety Experience (Continued)

A Safety Rules Committee composed of representatives from each Section completed the revision of the Manufacturing Department Maintenance Safety Rules.

D. Radiation Experience

There were two Class I radiation incidents involving dropping of low-radiation-level process sample from a pickup truck in transport and an over-pressure in the 241-UR tank farm which resulted in widespread contamination from metal waste supernatant which spurted 30 feet into the air. Contamination was instantly spread by a 20 mph wind as far as 1000 feet, however initial control action was swift and undoubtedly prevented additional spread.

Total emission of I^{131} from Redox and T facilities averaged 1.4 curies per day.

A unique situation was experienced when a fall-out of radioactive particles occurred on 12-8 shift, May 26 resulting in general contamination of 3000-5000 c/m on all horizontal surfaces in the 200 Areas. The origin of the material was from the atomic tests in Nevada on May 25. An information bulletin was issued to inform all employees of the extent, nature and lack of biological hazard from this fall-out.

E. Personnel Activities

1. Training of duPont Personnel

Three Radiation Engineers completed training in the Radiation Monitoring Sub-Section on May 22.

2. Emergency - Disaster Training

R. L. Weston, Planner-Evacuation Procedures, was recently assigned to Separations Section to organize and train personnel in emergency-disaster rescue work. At present a review of existing procedures on evacuation, blackout and civil defense is being made in the hope that a single comprehensive procedure might be obtained.

3. G.E. Supervisory Selection Program

Evaluation of one candidate from the Process Sub-Section was completed during the month.

Preliminary appraisal of twenty-one Power and Maintenance Sub-Section personnel was made. Final evaluation was postponed during absorption of qualified and available foremen from 700-1100 Areas.

[redacted] DECLASSIFIED

1203839

DECLASSIFIED

E. Personnel Activities (Continued)

4. Laboratory Technical Personnel

Inaugurated this month was a series of information lecture meetings concerning plant processes, instrumental analytical methods and applications, and radiation measurements. Complete coverage is obtained for all technical personnel in the Analytical Unit Laboratories and the program has done much already to stimulate job interest and knowledge. The meetings have been widely attended by groups outside of the Analytical Unit.

5. Radiation Monitoring Training for Power & Maintenance Personnel

The Radiation Monitoring School for Power & Maintenance exempt personnel consisted of 18 talks for a total attendance of 296 people.

6. Visitations

B. D. Wilson visited the Vitro Corporation, in New York, May 18 and 19 to review designs for Redox Phase II Expansion.

1203040

ENGINEERING DEPARTMENT

MAY 1953

TECHNICAL SECTION

Two hundred powder metal compact slugs have been received from the Sylvania Electric Products Company. Extensive pre-irradiation tests will be run on these pieces in preparation for a 5000 piece pile test of this type of metal. The last tube of the preliminary production test of 45 powder metal compact slugs is scheduled for discharging in June at approximately 625 MWD/T. Preliminary results of grain growth studies of uranium, produced by powder metallurgy from both hydride and uranium powders, indicate that some localized grain growth takes place at temperatures above 610° C.

One tube of anodized slugs from Production Test 105-515-E was discharged and examined during this month. These slugs, which had been in the fringe of the .285 orifice zone of the pile for approximately three months, including one month of down time, had a very low corrosion rate. Although the anodized coating had been removed from slugs positioned in the rear half of the tube, the amount of aluminum removed was too small for accurate measurement.

Ninety tons of rods were beta heat treated at Feed Materials Production Center this month. These are to be machined into slugs at that site and shipped to Hanford. Lead-dip canning is scheduled to start in July.

Three hundred additional eight-inch slugs were triple-dip canned in May using Tru-Line interlocking cans and caps. These are the first of 35,000 to be canned and charged in to the piles on a production test basis. It is anticipated that all production will eventually be processed in Tru-Line cans.

Three enriched U-235-aluminum slugs that failed in the piles have been examined. Failure appears to be due to leakage of water through faulty welds, subsequent corrosion of the unbonded slug, and rupture of the jacket. The faulty welds result from air forced through the annulus between the cap and can upon thermal expansion during welding. A procedure, suitable for production use, has been developed in which the cap is brazed into the unbonded slug assembly with Al-Si. Welding of the bonded cap can be performed satisfactorily. Early use of this process on additional U-235-aluminum slugs to be processed is contemplated.

A total of five normal uranium ruptures occurred during the month. All of these were Group 8 metal. Three occurred at C Pile and two at F Pile.

Seven C-metal slugs ruptured during the month, six of which occurred on May 27, 1953. No ruptures of E-metal slugs occurred.

The power level of the D Pile was increased about ten percent during the

120304
UNCLASSIFIED

month under production test conditions which do not require use of excess header pressure.

Flattening adjustments permitted new high power levels at C, D and F Piles.

Test pile measurements of TS-GBF graphite continue to indicate excellent purity.

The modified "Head-End" $KMnO_4$ procedure was successfully adapted to the Redox plant and enabled the plant to operate on two uranium cycles versus three previously employed. It also resulted in a marked improvement in decontamination of the plutonium product stream - dF values increased to the range 7.0-7.3.

Uranium removal rates from the tank farms were established at new maximums which reflect the high on-stream efficiency maintained as well as systemization in sluicing operations and effective use of water sluicing techniques. The solvent extraction system was explored for capacity limitations up to seven tons per day through-put with satisfactory decontamination and yield performance; possibility of even higher rates through solvent extraction is indicated. The uranium concentration system operated at new maximum rates and resulted in improvement in the purity by a factor of two, in accord with expectations from Semiworks studies. The effectiveness of TBP stripping was maintained at the higher rates and permitted the attainment of new minimum average time cycles for calcination of UO_3.

One run substantiating the previously reported satisfactory head-end treatment was completed in the Hot Semiworks, and the facility was decontaminated to permit contact maintenance work and equipment revisions prior to resumption of studies on the dual scrub, back cycle, and reflux flowsheets.

Direct recovery of metallic plutonium from plutonium skulls by remelting them in an open pot furnace shows some promise. About fifty percent recovery as a plutonium button was obtained in an initial experiment in which a skull and associated oxide were treated with a molten calcium metal-calcium salts mixture.

The feasibility of substituting nitrogen for agon as a purging gas while butt welding austenitic stainless steel pipes by the inert gas shielded process has been demonstrated. Tests of the resulting welds revealed no difference in the corrosion rates of welds purged with nitrogen as compared with argon purging.

Lattice measurements have been completed on the 0.926 inch diameter slugs at 6-3/16 inch and 7-1/2 inch lattice spacings. Comparison of the buckling values for these small diameter slugs with those previously obtained with standard slugs indicate fair agreement in dry buckling values for a given graphite/uranium mass ratio. However, in wet lattices the buckling of the small slugs is about 25 microbucks larger than for standard slugs at the same

1203842

graphite/uranium ratio. This increased buckling is probably due to the smaller amount of water used in the small slug size lattices.

Back-cycling of certain Redox process waste streams which are high in aluminum nitrate concentration is being considered as a means to reducing reagent consumption and waste storage costs. A detailed survey of the proposed flowsheet resolved various questions relative to build-up of stream constituents, in particular plutonium, and led to recommendations for routine analyses required to insure adequate process control.

The scrub behavior of ruthenium in the Uranium Recovery Process indicates that an additional 12 feet of scrub column would improve decontamination of this limiting fission product ten-fold. This would permit processing of material aged for about two years as compared to the 4 years aging now required to achieve adequate decontamination.

Scavenging of Uranium Recovery waste with copper ferrocyanide has been shown to be very effective, particularly in removing radiocesium, the long-lived contaminant of chief concern, and thus may permit direct cribbing of the treated waste solution.

DESIGN SECTION

Direct engineering effort of the Section for May was distributed approximately 63% to the Expansion Program, 21% to other design projects and 16% to research and development studies.

Design progress on Project CA-512-R, 100-K Reactor Facilities, was advanced 5.3% during May to 85.7% complete. These percentages of completion are based on a total of 1900 drawings, an increase of 50 above the previous estimate of 1850 due to adding drawings for significant differences between KW and KE. During the month, 147 detail drawings were approved, bringing the total to 1538 which have been approved. Twelve additional graphite thermocouples will be included in each of the "K" Reactors so that additional information correlating graphite temperatures with coring may be obtained. Consideration was given to the possibility of substituting a gamma water activity system for the beta monitor system. However, the time required for design of the gamma system precludes substitution at this time. All feasible measures are being taken in the design to facilitate the installation of gamma monitoring at a later date.

Detailed design of the 200 Area Expansion Program, Project CA-513, continued. The Purex Waste Facility advanced 6.5% during the month to 28% complete; the Purex Outside Facilities design advanced 11% during the month to 76% complete; the design of the Metal Conversion Plant advanced 22% during the month to 94% complete. A scope change of the waste tanks, approved by the Design Committee, specifies a flat bottomed concrete tank with steel liner rather than two separate tanks with an annulus and cooling system for the steel tank together with other structural changes which decreased estimated construction costs.

1203843

DECLASSIFIED

Detailed design work on the 300 Area Expansion Program, Project CA-514, was advanced 10% during the month to approximately 30% complete. This does not include the addition to the 313 Building structure and services, which are being designed by an A-E. Design activities were concentrated on the 313 Building process equipment and remodeling of the existing structure.

Design of the Redox Tank Farm, Project CA-539, sufficient for unit price contracting was transmitted to the Commission on May 4, and all design work for the tank farm was completed on May 22. Over-all design was advanced 40% during the month to 85% complete.

Scoping and preliminary engineering were started on Project CG-549, Activate Task I, Building 234-5. It is estimated that the total design cost will be $60,000 and will require approximately 80 drawings.

Design work on Reactivation of P-10 Facilities, CG-550, is 12% complete.

Detail design of the Recuplex Installation, CG-496, is approximately 85% complete, an advance of 7% during the month. Design of the waste disposal crib was completed and approved.

PROJECT SECTION

At the end of the month, completion status of major projects was as follows: CA-431-A, 100-C Waterworks, 99.8%; CA-431-B, 100-C Reactor, 99.8%; CG-438, Ball Third Safety System, overall, 99%; CG-483, Downcomer Repairs, overall, 99%; CA-506, Repairs to 100 Areas Retention Basins, overall, 99%; CG-496, Recuplex, 1%; CA-512, 100-K Area Facilities - Water Plants, KW, 16.96%; KE, 10.08%, Reactor Buildings, 105-KW, 8.11%, 105-KE, 5.07%; CA-513 - Part "A," Purex, and Part "B," UO_3 Expansion, temporary construction started; Part "C," Purex Prototype, 95.3%; CA-514, 300 Area Expansion, overall, 1%.

The J. A. Jones Construction Company was selected by the Commission as the new fixed-fee contractor for Minor Construction.

The unfair labor practice charge filed by seven millwrights against Kaiser Engineers was dismissed by the NLRB The special panel of the Federal Mediation and Conciliation Service recommended a settlement of the machinist millwright dispute. The recommendation was generally accepted by the crafts, but a new phase of dispute caused the second work stoppage of the month, the result of which was a walkout by millwrights. Retroactive wage increases were approved for the carpenter, ironworker, and millwright crafts. Carpenters and millwrights also gained a travel allowance for certain areas of outside-the-barricade work.

Installation of the Ball Third Safety System was completed in 105-H May 9, and repairs to 107-H Retention Basin were completed May 15. These completions permitted substantial reductions in construction contractor personnel assigned to minor construction.

1203044

Temporary construction on Recuplex, CG-496, began May 1; and construction on various phases of the 300 Area Expansion began during the month.

For CA-512, 100-K Area Facilities, work continued on concrete placement for the water plants. The 181 Building walls were placed to elevation 408'. The first sections of the 60" water lines are being laid. Building 105-KW walls and elevator shaft are to elevation +66'. Construction has begun in the transfer and storage area. In Building 105-KE the second pour on the Process Unit was made May 20. Slabs are complete at 0'0" elevation, and a portion of the walls has reached elevation +16'. Work continued on movement of shop equipment from 101 Building to 2101-E. Of the approximately 100 pieces of shop equipment, 26 have been accepted. The work is about 30 days behind schedule, and jurisdictional disputes continue.

For Purex Facility, CA-513-A, overall design was 40.4% complete; temporary construction in 200-E was 50% complete; and excavation for 202-A Building was about 50% complete, 160,000 yards having been excavated to date. Design for the "B" part, UO_3 Expansion, was 83% complete. All major procurement items have been requisitioned. Temporary construction began on May 19. Construction of Part "C," Purex Prototype, was 95.3% complete. For CA-535, Redox Capacity Increase Phase II, overall design was 28% complete. Overall design for CA-539, Redox Tank Farm, 241-SX, was 85% complete. All design drawings required by a unit price contractor for this tank farm has been completed and approved.

ORGANIZATION & PERSONNEL

Total on Roll, May 1, 1953	1,524
Accessions	37
Separations	18
Total on Roll, May 31, 1953	1,543

A. B. GRENINGER, MANAGER
ENGINEERING DEPARTMENT

[redacted]

1203845

DECLASSIFIED

DECLASSIFIED

ENGINEERING ADMINISTRATION SUB-SECTION

MAY 1953

In connection with graphite delivery by the National Carbon Co. under Special Agreements G-5 and G-23, both of which contracts are being administered by Engineering Administration, National Carbon had delivered by June 1, 1953, a total of 891.8 tons of purified graphite under G-5 and 310.2 tons under G-23. Delivery of graphite to date under G-5 is 14.3% ahead of the contracted rate; this amounts to about one month's extra graphite production at this time. Delivery under G-23 is slightly ahead of the contractual schedule.

The Vitro Corporation has submitted a status report on the close out of the classified documents created in connection with subcontract G-148. All that remains to be done by Vitro is to check a listing of documents created under the subcontract (supplied by Hanford) of which copies are not in the Hanford files and complete a duplicate set of file record cards which will show the ultimate disposition of all copies of the documents created. It is expected that these tasks will both be completed shortly and the final audit of Vitro records by Hanford can then be undertaken. This will be done on the basis of a sampling technique being developed by the Statistical Section, which will materially reduce the work of the audit without sacrificing its accuracy. At the completion of the audit, formal transfers of document accountability will be made for documents permanently retained by the Vitro Corporation.

During the month the following contract activities were handled:

1. Pursuant to a letter from the AEC dated May 1, 1953, negotiations have been suspended in connection with a proposed contract with Industrial Models, Inc. of Arden, Delaware, covering the fabrication and delivery of six engineering scale models for the 100-K Areas. Industrial Models, Inc. was notified of our decision to cease negotiations on May 12.

2. Special Agreement No. G-24 between General Electric and the State College of Washington, providing for the acquisition of pigs for use in radiological research, was approved by the AEC on May 6 and conformed copies have been distributed.

3. Special Agreement No. G-29 between General Electric and The Travelers Indemnity Co., covering inspection services of boilers and unfired pressure vessels, was approved by the AEC on May 22, and executed by Travelers on May 25. Inspection of the documents after execution by Travelers disclosed that the signature of the contracting officer had not been attested. All copies were returned to the company for attestation. Conformed copies will be distributed in the near future.

4. At a conference with AEC representatives, it was decided that insufficient information was available to justify formal advertising for bids for the

1203846

operation of the Richland bus system. It was agreed that instead of formal bids, informal proposals would be requested. It is intended that such informal proposals be used as the basis for the negotiation of a contract with one of the interested parties. The operation of the shuttle bus system is not to be made a part of the above proposal.

5. Special Agreement No. G-27 between Frank Mayer Engineering Co. and General Electric, covering the furnishing of drafting assistance, was approved by the AEC on May 4. Conformed copies have been distributed.

6. Modification No. 2 to Consultant Agreement No. 112 between General Electric and Dr. P. E. Church, providing for an extension of the contract term, was approved by AEC on May 21. Conformed copies have been distributed.

7. Modification No. 3 to Special Agreement No. G-12 and Modification No. 5 to Special Agreement No. G-5 (both between G. E. and National Carbon Co.), covering changes in physical and process specifications for graphite, were executed by G. E. on May 7 and approved by the AEC on May 21. The modifications were forwarded to National Carbon Co. for final execution on May 25.

8. Modification No. 1 to Special Agreement No. G-11 between General Electric and Remington Rand, Inc. (microfilming services) covering an increase in quantity and an extension of time, was finally executed by Remington Rand on May 11. Conformed copies have been distributed.

9. Modification No. 2 to Special Agreement No. G-21 between General Electric and Bird Machine Co. (centrifuge alteration), adding a more complex test program, was approved by AEC on April 28 and forwarded to the Supplier for execution. The modification was executed by Bird Machine Co. on May 11. Conformed copies have been distributed.

10. Modification No. 1 to Rental Agreement No. G-8 between General Electric and Industrial X-Ray Engineers, providing an extension of time for the rental of x-ray equipment, was approved by AEC on May 11. Conformed copies have been distributed.

11. Modification No. 2 to Consultant Agreement No. 113 between General Electric and Dr. S. T. Cantril providing for extension of time of the agreement, which was sent to the AEC for approval on April 29, has not been approved at this time because one copy of the document was misplaced during processing by the Commission. One additional copy has been executed by G-E and sent to Dr. Cantril for signature. Approval is expected early in June.

12. Modification No. 2 to Consultant Agreement No. 114 between General Electric and Dr. M. E. Ensminger, providing for an extension of time of the agreement, was approved by AEC on May 11. Conformed copies have been

1203847

DECLASSIFIED

DECLASSIFIED

distributed.

13. Modification No. 2 to Consultant Agreement No. 115 between General Electric and Dr. P. E. Kendall, providing extension of time, was executed by Dr. Kendall on May 21 and sent to the AEC for approval the same day.

1203848

[redacted]

PILE TECHNOLOGY SUB-SECTION

MONTHLY REPORT

MAY, 1953

R. B. RICHARDS

[redacted]

DECLASSIFIED

1203049

VISITORS AND BUSINESS TRIPS

E. C. Anderson, R. L. Shuch, M. P. Warren, F. N. Hayes, C. L. Cowan, Jr., F. B. Harrison, F. Reines, C. W. Johnstone, T. J. White, and J. G. Winston visited here from Los Alamos Scientific Laboratory, Los Alamos, New Mexico, from February through May 12, 1953, to aid in the Nutrino Program.

H. J. Bowman visisted here May 18, 1953, from the Trent Tube Company, East Troy, Wisconsin, to discuss welding techniques.

T. F. Fisher visited here May 22 through 29, 1953, from Knolls Atomic Power Laboratory, Schenectady, New York, for mock-up test of KAPL-108 irradiation.

J. E. Kemme visisted here from Argonne National Laboratory, Lemont, Illinois, May 2 through 13, 1953, to assist in decontamination of ANL-140 equipment.

J. W. Moyer visited here from Knolls Atomic Power Laboratory, Schenectady, New York, May 7 through 9, 1953, for irradiations on KAPL-109.

D. M. Wroughton visited here May 8, 1953, from Westinghouse Atomic Power, Pittsburgh, Pennsylvania, for operations of ANL-140 loop and irradiation tests on poison solutions.

J. M. Atwood and W. C. Houck visited Los Alamos Scientific Laboratory, Los Alamos, New Mexico, May 20 through 22, 1953, to present papers at A.E.C. Corrosion Information Symposium and to inspection water boiler reactor.

W. L. Bunch visited Brookhaven National Laboratory, Upton, Long Island, New York, May 14 and 15, 1953, to attend the A.E. C. Shielding Information Meeting.

G. C. Fullmer attended the A.E.C. Shielding Information Meeting at Brookhaven National Laboratory, Upton, Long Island, New York, May 14 and 15, 1953, and visited Knolls Atomic Power Laboratory and West Milton Site, Schenectady, New York, May 18 and 19, 1953, to discuss pile reactivity study.

S. Goldsmith visited Los Alamos Scientific Laboratory, Los Alamos, New Mexico, May 19 through 22, 1953, to present paper at Corrosion Symposium.

J. M. Roberts visited Harshaw Chemical Company, Cleveland, Ohio, May 4, 1953, to discuss BF-3 gas handling; Alco, Pittsburgh, Pennsylvania, May 5, 1953, to discuss control rod extrusions; and Argonne National Laboratory, Lemont, Illinois, May 7, 1953, to discuss mechanical development problems.

1203050

ORGANIZATION AND PERSONNEL

Personnel totals are as follow:

	April	May
Administrative	3	4
Pile Engineering	77	79
Pile Materials	68	67
P-10 Process Studies	6	0
Special Irradiations	24	24
Total	178	174

General: P-10 Process Studies, consisting of three Engineers, one Chemist, one Engineer Assistant, and one Secretary C, was transferred to Separations Technology Sub-Section.

Administrative: One General Clerk B transferred in from Project-Reproduction and Drafting.

Pile Engineering: One Technical Graduate - Rotational transferred in from Applied Research Sub-Section, one Technical Graduate - Rotational transferred in from Radiological Sciences-Records and Standards, and three Technical Graduates - Rotational were permanently assigned to Pile Technology Sub-Section.

Pile Materials: One Technical Graduate - Rotational transferred to Project-Estimating and Inspection, and one Technical Graduate - Rotational was permanently assigned.

PROCESS TECHNOLOGY

Power Level Limits

With the exception of C and D Piles, the power levels of the piles were set by vapor binding limits. C Pile operated during the month at fixed power per tube limits in the program to explore the possible slug rupture dangers of increased local power generation rates, and D Pile is operating under production test conditions with modified boiling limits. As called for in the test program, the level at D Pile was increased approximately ten per cent this month.

Slug Rupture Experience for May

Five uranium failures occurred during the month of May; all of them were Group 8 metal. Two of the ruptures occurred in fringe tubes at F Pile and the remaining three were in the .318 orifice zone at C Pile. In addition, a J-slug failure was pushed from 0870-DR on May 14.

1203851
DECLASSIFIED

The three failures that occurred at C Pile in May make the over-all rupture rate at C comparable to rates at the other piles. There are several features of the rupture data that should be noted, but conclusions cannot be drawn from the limited rupture experience.

The last four ruptures at C Pile were four-inch material, all from reprocessed or under-dimension lots. They were all canned prior to September, 1952, the earliest canning date being the rupture from 1361-C which was canned January 3, 1952. Three of four ruptures were operating at tube powers above 500 KW, and were above 500 MWD exposure. Slug powers could have been slightly higher than in a normal tube operating at these powers since all of the rupture tubes were either adjacent or within two lattice units of enriched columns.

The monthly report of ruptured slug data is being discontinued as such for this month. It will be issued quarterly or as deemed advisable from rupture considerations.

Use of Enrichment on Near Side of All Piles but C

Experience with C Pile has shown strong advantage for the two "half rods" in effecting a more even flux distribution than is possible at the old piles. The same result could be achieved by charging several columns of enriched slugs (4-1/8 per cent U^{235}-Aluminum) on the near side and compensating the reactivity with additional flattening. An increase in effective central tubes of about three per cent equivalent to about 18 MW is predicted. This information is presented in document HW-28218, R. O. Brugge to R. O. Mehann, May 28, 1953.

Improved Method of Charging B Pieces

A study is under way on the advantages of charging bismuth pieces, used for the production of polonium, in tubes containing other materials, rather than in separate tubes. Increased reactivity of up to 500 in-hours total for all piles appears possible.

Process Specifications

Process specifications were issued for the addition of sodium dichromate to pile process water.

Higher Specific Power Operation

Production Test 105-532-A-2: Radiation readings of the individual slugs from the discharged enriched column indicate that the uranium enriched to 1.75 per cent U^{235} operates at a power 1.80 times that of a normal uranium slug operating in an equivalent flux. This includes any reflected increase from the adjacent normal uranium columns.

The maximum power obtained in the first enriched column was approximately 45 KW/foot of uranium. The calculated core temperature and cap temperature for the maximum power slug was 495 C and 155 C, respectively.

1203352

Present tube powers of enriched columns vary from a maximum of 615 KW for 2174-C to values around 500 KW for enriched columns outside of the "Hot Spot". The maximum slug powers for these tubes will vary between 50-55 KW/foot U, and equivalent tube output between 770-850 were these slugs the maximum power slugs in a tube with cosine distribution of slug powers.

Production Test 105-533-A: The effects of increased tube powers localized to a central group of about 100 tubes in C Pile are being investigated by changes in the poison arrangement. Fifty tubes are now operating at from ten to 17 per cent above the limit outside the experimental zone. Examination of the slugs from one tube and of a process tube discharged in May indicated no serious effect of the increased output.

Operation with Maximum Panellit Pressure Monitor Protection

Operation with the reduced trip ranges continued to be satisfactory during May and on the May 14 outage only four inoperative high trips and one inoperative low trip were found at shutdown. Before start-up a single inoperative high trip was found. Supplement A to Production Test 105-534-A was issued this month authorizing increased tube output and the pile level has been increased about ten per cent.

An analysis of some aspects of protection against process tube boiling damage pertaining to allowable tube power at D Pile has been completed in rough draft form and will be issued shortly.

PROCESS PLANNING

Water Plant Expansion Program

Discussions were held among members of Reactor, Design, and Technical Sections concerning the proposed pile and water plant modifications to expand the production capacity of the present piles. Probable operating conditions and limits for the next few years were discussed with general agreement reached that water plant capacity is likely to be a real limit to power levels. More detailed consideration was then given to the practical maximum pile water flow set by piping configuration, cooling annulus and allowable tube inlet pressure considerations. It appears that flows as high as 65,000 gpm might be attainable in the old piles. Further attention was then given to the practical limits to water plant capacity as set by permissible pump pressures and filter bed capacities. Several points of general interest should be noted.

1. Since properly operating Panellit gages can fulfill the "scram before boiling" requirement, any additional process tube instrumentation must be justified on the basis of additional pile safety rather than potential production increases.

2. Conversion to alum coagulated water in all piles appears justified on the basis of film formation, weight loss corrosion, and filter bed capacity effects.

[redacted] DECLASSIFIED

1203853

DECLASSIFIED

3. The feasibility of any proposed plant modification should be based on economic considerations. Production effects should be capable of paying off the modification costs in less than five years to justify consideration. On this basis, power level increases as great as 80 per cent appear possible at the old piles.

New Pile Studies

Design, Advanced Technology, and Pile Technology personnel have discussed possible approaches to new pile design at Hanford. Of primary concern is the direction which such efforts should take. It was generally agreed that the maximum improvement in unit cost possible with a relatively conventional plutonium production pile should be investigated, but that longer range study should be directed toward a so-called "dual purpose" pile, where sale of recovered power would help reduce the unit cost of plutonium below that attainable with a strict plutonium producer. Methods of production cost analysis were discussed at some length in the hope that studies by the three organizations will have the same economic approach and thus will be easier to compare and co-ordinate.

PILE PHYSICS

Pile Enrichment

The uncertainties in tube flow associated with the H Pile orifice changes during the Ball 3X outage make it difficult to assess the benefits of enrichment of H Pile further at the present time.

One enriched column was discharged from C Pile during the reporting period due to exit activity indications and three at H Pile. A further indication of slug failure on header five, a row containing several enriched columns, by the experimental gamma detection system has been noted during recent operation at H Pile.

Formal approval for large scale fringe enrichment of C Pile has not been given to date. The document outlining plans for this enrichment program will be issued when and if the program is assured.

Pile Control Studies

The analysis of the effects on control of the unenriched pile of varying the boron concentration in the Ball 3X system has been completed and issued as a document, HW-26753. On the basis of speed of control as well as full channel strength, it was recommended that the effective boron concentration in any Ball 3X channel in a 29-VSR Pile be, at least, one per cent and that in any Ball 3X channel of a 45-VSR Pile it be, at least, 0.6 per cent.

The investigation of the control problem of the enriched pile has been summarized in rough draft form and is currently being reviewed.

1203854

Production of Higher Isotopes

A series of mathematical relationships for use in predicting the quantities of various isotopes present in irradiated uranium up to Curium 242 have been derived. Curves of the theoretically predicted quantities are being drawn for comparison with the results obtained by chemical analysis by the Radiochemistry Sub-Unit of Applied Research. The isotopic build-ups are shown as a function of Plutonium 239 formation so that absolute flux calculations are not required. The predicted build-up rates of Plutonium 240 and Plutonium 241 agree closely with those observed; absolute build-up rates of Americium 241 and Curium 242 have not been calculated as yet. The radial flux distribution within the slug as well as the longitudinal distribution along the column has been considered in the derivation. Separate curves have been calculated for various assumed neutron temperatures; the effective neutron temperature is not precisely known due to the complexity of the temperature distribution in the pile graphite.

Scram Transient Studies

The theoretical aspects of determining the control strengths of large groups of rods by analyzing a recorded scram transient were reviewed during the month; no absolute method has been previously available for calibrating total safety system strength. It is intended to have solutions for various times following the scram as functions of delayed neutron activity and of control strength tabulated by the IBM group. Checking of the IBM results and monitoring of several pile scrams will be undertaken prior to preparing a production tert to authorize special measurements.

Production Test 105-529-A - In-Pile Test of the Ink Control Facility

A test to determine the control strength of the ink facility using pile period measurements during the DR Pile start-up of May 3, was unsuccessful due to shadowing of the large number of temporary poison columns. This test will be repeated during a start-up when conditions are more favorable.

The flux distribution surrounding and through the ink column is currently being calculated in an attempt to obtain a better understanding of the gas generation process.

Critical Assemblies of U^{235} - Aluminum Alloy Slugs

Reports of the Oak Ridge critical experiments with "J" slugs have been reviewed in re-examining the nuclear safety considerations for discharging U^{235} - aluminum alloy slugs. The study was undertaken because of the larger number of "J" slugs per DR column than in the H-10 loading and the current use of "C" slugs for pile enrichment.

DECLASSIFIED

1203355

SHIELDING STUDIES

Reflector Flux Measurements

The flux traverse measurements in the E Test Facility at F Pile, of particular significance for relating shield flux measurements to fringe tube power heat generation rates, were continued during the month. The thermal flux data obtained as the difference between bare and cadmium-covered gold foil activations, appears to be a factor of two higher when corrected for pile power level than copper foil data taken in the same facility by F. E. Kruesi, in 1948. The present flux values are expected to be good to the ten per cent accuracy believed to exist in the 189-D sigma pile source. A definite peaking is noted in the thermal neutron curve approximately six inches beyond the outermost uranium column, whereas fast neutron flux traverses indicate a decided drop at the edge of column 96 with the expected exponential decrease through the reflector. The recent data agree favorably with relative measurements made by J. A. Berberet in early 1951.

Radiation Damage Studies - Masonite

An exposure of masonite samples to a gamma flux field from irradiated tantalum slugs was completed and the samples compression tested. The data fit closely the exponential form for loss in strength with irradiation: $S = S_o e^{-CD}$ where S is the compressive strength, S_o the initial compressive strength of 23,400 psi, $C = 6.36 \times 10^{-8}$ r^{-1} hr/day, and D represent the gamma dose in Roentgen units. The indicated time for "half-loss" in strength in the innermost masonite cycle due solely to gamma irradiation is of the order of several years.

Off-site radiation damage data on plastics as well as masonite have been examined for flux dependence. It is expected tentatively that under combined deteriorating influences the strength of the masonite will change with time in the following manner: $S = S_o d^{-KT}$ where K represents the summation of temperature, neutron, and gamma effects of the form:

$$K = C_T e^{\frac{-E}{RT}} + C_n f_n + C_r f_r$$

A series of Y-hole irradiations under constant temperature conditions plus additional gamma exposures under varying temperature conditions will be required to establish the validity of the above formula.

Chemical analysis data on the irradiated masonite from 100-F vertical safety rod step plugs removed during the Ball 3X outage shows no significant change in hydrogen and carbon content with position in the step plug. The masonite cycles in the step plug correspond to the five outer cycles of the six-cycle pile shield.

Radiation Damage Studies - Concrete

Three compression specimens of Brookhaven concrete and four of magnetite-limonite concrete containing the ore most likely to be obtained commercially were irradiated in the Y Test Facility at H Pile and the evolved water collected.

[redacted]

These samples are to be compression tested as soon as their activity has decayed sufficiently.

Arrangements have been made with H. S. Davis of Process Engineering to design the appropriate modifications as listed below to permit monitoring of the K Pile shield structural properties.

1. A large well to contain standard 6" x 6" x 24" concrete specimens in intimate gas contact with the shield concrete.

2. Alteration of the ten spare VSR filler plugs to permit enclosure of concrete samples.

3. Separate gas venting of the front face, rear face, and top shields in order to obtain pressure and content data from the evolved gas.

Shielding Information Meeting

W. L. Bunch and G. C. Fullmer attended the AEC shielding information meeting at Brookhaven National Laboratory on May 14 and 15. The Brookhaven experiments on neutron streaming in steel slabs of varying content were of greatest interest to Hanford. Most of the off-site shielding development work is concerned with mobile reactors in which geometry and distance effects are of considerable importance. No off-site development work on stationary pile shields nor radiation damage studies was reported at the meeting.

Attenuation Measurements - Magnetite-Limonite Concrete

Ion chamber measurements of the gamma attenuation characteristics of conventional magnetite-limonite concrete slabs irradiated in the DR Test Wells show little difference from those previously obtained in Prepakt magnetite-limonite. Due to an ionization chamber failure only three points were obtained in the conventional material; however, these points fall on the intensity curve from the Prepakt material which has approximately the same density, and further measurements are not considered necessary at this time.

Both fast and thermal neutron attenuation data on both Prepakt and conventional magnetite-limonite concrete have been obtained during the past month. The fast neutron attenuation data using the sulphur-32 (n,p) reaction shows a relaxation length of approximately nine centimeters; the thermal neutron data are still being analyzed.

EXPERIMENTAL PHYSICS

Slug Rupture Detection

The experimental prototype of the scintillating crystal gamma ray spectrometer slug rupture detection system developed for full pile effluent monitoring operated routinely at H Pile during the month. This prototype installation includes the mechanical turret arrangement which permits the effluent from

1203357
DECLASSIFIED

approximately 12 crossheaders to be cylically monitored by a single spectrometer installation while eliminating the necessity for water valving or current switching as the various effluent samples are presented to the spectrometer. The installation is now routinely monitoring the effluent from the near side of nine crossheaders at a rate of 30 seconds per point. Responsibility for system maintenance has been given Instrument Unit to evaluate their experiences in this regard.

A review of the relative merits of various methods of slug rupture detection in a Hanford application was issued as document HW-27629, "Methods for Detecting Uranium Slug Jacket Failures", R. S. Paul. This work describes the underlying principles, equipment and performance data appropriate to a fission product beta sensitive system, a delayed neutron sensitive system and a fission product gamma sensitive system. These considerations point to the scintillating crystal gamma spectrometer system as the most desirable for Hanford application. Efforts are being initiated to replace the beta monitoring system at one of the existing piles with the gamma monitoring system as the initial step in a program to realize the increased protection against slug rupture induced damage which is afforded by the more sensitive system.

Several circuit modifications in the spectrometer system have been made to achieve increased simplicity and economy. These include a simplified pulse-height calibration system and gain stabilization circuit and a simplified count-rate-meter-circuit. This circuitry has been placed in operation and demonstrated satisfactory.

duPont Rupture Detection Tests

The performance tests of the slug rupture detection equipment designed by duPont personnel for application at Savannah River have been completed. The information obtained from these tests has only limited application to the Hanford problem.

Slug Exposure Monitoring

Preliminary data have been obtained from a gamma ray spectrometer installation in an attempt to develop a method of determining relative slug exposures soon after slug discharge. Modification of the collimating system is being effected to increase the intensities available for this work.

Radio-Isotope Analysis

A gamma ray spectrometer system has been installed in the laboratory for the analytical identification of radioactive isotopes through gamma energy and half-life analysis. Good stability and resolution are being realized in this instrument which is in routine use in support of Hanford problems.

Neutron Distribution in a Hanford Lattice Cell

Neutron flux distribution measurements were made through the standard Hanford slug and on into the graphite between two metal columns in the Test Pile

1203358

lattice to augment distributions previously determined through the fuel element alone. Detectors of natural uranium and aluminum - U^{235} alloy were used in the fuel element and the enriched alloy detector employed exclusively in measurements in graphite. Although the accuracy per point is quite good, an undesirable data spread was apparently induced by the non-homogeneous manner in which U^{235} is distributed in the aluminum alloy. Interdetector calibration is being employed to refine the data.

The portion of the cell traverse extending through graphite agrees quite well with diffusion theory calculations when normalized at the fuel channel surface. The agreement is not as good when theory and experiment are normalized in the fuel element; presumeably because of uncertainties introduced at the fuel-air-graphite boundaries.

Pile Instrumentation

Considerable effort during the month was devoted to the development and testing of instrumentation capable of reliably indicating the rate of pile power increase directly. None of the several systems which were investigated were sufficiently free from spurious signals to warrant their direct employment in a Hanford pile safety system.

A review of instrumentation in use in the over-all control and safety systems revealed that in some instances more reliable and informative equipment exists than that now in use. Very little of the existing instrumentation differs from that originally installed although significant developments have been made in this field during the past several years.

Neutron Flux Monitoring

A modest program has been initiated to determine the distribution of neutrons possessing energies greater than thermal in certain pile locations of interest. Primary consideration is being given to the use of threshold detectors even though the information yielded by this technique is admittedly limited. Techniques to be employed in working with these detectors are being developed preparatory to the initial measurements scheduled next month. The applicability of nuclear emulsions to the determination of pile neutron spectra is also being evaluated.

Automatic Tube Outlet Water Temperature Recording Facilities

The H Pile Flexowriter automatic tube outlet water temperature recording facilities operated in support of the H Pile enrichment experiment during the month. Some equipment maintenance was required and a program of routine preventative maintenance was initiated.

The improved Flexowriter installation at B Pile is now complete and operating satisfactorily. This installation is serving as a prototype for subsequent installations at the remaining piles which are sponsored by Reactor Section. Assistance as requested was given the Reactor Section in the preparation of the project proposal describing these installations. The Flexowriter system for C Pile has not yet been installed.

UNCLASSIFIED

1203359

Test Pile - Routine Tests

Regular slug testing proceeded routinely during the month. Fifteen lots of Mallinckrodt billet eggs yielded TDS values ranging from 13 to 17. One Hanford billet egg lot yielded a TDS of 15.

Lithium-aluminum alloy slug testing proceeded routinely during the month as material fabricated for the H-10 program was reclaimed for use in the DR-10 program.

Test Pile - Graphite Testing

Test pile measurements of the production lot graphite produced under contract G-5 proceeded routinely during the month. This material continues to rate high in dih (purity) results with but one of 104 heats rating lower than dih (purity) = + 0.9. The density of this material is averaging about one per cent lower than was the case for the CS-GBF material previously produced.

The accumulative results to date on TS-GBF production testing are summarized as follows:

dih (purity)	80-85	86-90	91-95	96-100	101-105	106-110
No. of Heats	1	0	4	15	76	8

The test results obtained during this month yield the following purity distribution:

dih (purity)	80-85	86-90	91-95	96-100	101-105	106-110
No. of Heats	1	0	1	14	59	7

Test Pile - Special Tests

A review of the pile reactivity data obtained from orange oxide samples specially purified by Harshaw Chemical Company and deliberately "spiked" with varying concentrations of boron indicate that sample preparation has been unsatisfactory. Harshaw has been requested to submit additional samples. This program is designed to establish the feasibility of utilizing reactivity measurements as a process development and control tool in uranium fabrication.

The effect of graphite density and purity on production pile reactivity has been developed in support of the present graphite development effort. The derived results described the observed effects in existing piles quite well and permit predictions for the case of the K Piles to be reliably made.

1203360

HEAT TRANSFER

Tube Flow Studies

The Panellit trip settings on most of the piles are to be modified in the near future, so that they will initiate pile shutdown before a tube flow decrease sufficient to cause boiling in a tube can occur. The location of these trips with respect to pressure depends upon many factors, and calculations are quite time consuming. Consequently, a document is being prepared which will permit their location through the use of simplified graphs. The document will be issued as "Tube Temperature Limits Based upon Panellit Trip Settings", R. G. Vanderwater, HW-28153, May 25, 1953.

Consideration is being given by the Pile Materials Unit to the feasibility of increasing the permissible outlet water temperature based on corrosion limitations to 95 C at the D and H Piles. Consequently, an investigation was made to determine whether the existing Panellit settings at those piles are compatible with a 95 C outlet temperature and the "scram-before-boiling" limitation discussed above. It was found that such an outlet temperature may be permitted throughout the year at the H Pile except that Panellit setting changes may be required on approximately 25 central zone tubes. For the D Pile, it may be necessary to change about ten per cent of the total trip settings. The difference between the piles lies largely in the fact that the upper and lower trips are set closer together at H than D.

As reported previously, a document discussing the probability of the entry of air into process tubes and the probable effect thereof is being prepared. It will be issued as "Air in the Process Tube", R. G. Vanderwater, HW-27997, May 8, 1953.

A final report on the on-pile tests of Panellit response rate is being written. The object of the test was to compare the response rate for "as-mounted" Panellit gages with that of gages tested in the laboratory.

Thirty Meletron pressure switches were installed on the H Pile during the May 8 shutdown. The actuating pressures for these switches were obtained by tapping into Panellit pressure lines. After installation, it was found that six of them leaked; these six were effectively removed from the pile. The remaining switches are set to indicate the number of times they would have initiated a pile shutdown if they had been integrated into the Safety Circuit. Data obtained indicate that they would have caused no unnecessary shutdowns during the first two weeks of operation. Follow-up on the leaks has led to proposed modifications which would not alter the basic operation of the switches but which would materially decrease maintenance problems if 2000 were used per pile. The six faulty switches will be repaired and remounted on the pile during the shutdown scheduled for May 26.

Progress is being made toward laboratory and on-pile testing of about 35 Mercoid differential pressure controls and pigtail-venturi assemblies. Unless delays are encountered in securing assistance from Maintenance forces, it is anticipated that the assemblies will be ready for installation on the H Pile during the June 22 shutdown.

DECLASSIFIED

1203361

Process tube flow data for a wider range of conditions than was previously available were reported in "Isothermal Flow in a Process Tube Assembly for B, D, and F Piles", C. R. McNutt, HW-28039. The correlation between these and previously published data is good.

An investigation was made to determine "order of magnitude" effects on flow through a tube of possible changes in process tube fittings. It was found that, for constant header to header pressure, the flow through the central tubes at the H Pile could be increased (a) about ten per cent if the orifice were removed, (b) about nine per cent if the orifice were removed and a practical-size venturi were inserted in the pigtail, (c) up to 19 per cent, theoretically, if the inlet fittings were enlarged and if venturis were installed, and (d) up to 40 per cent, theoretically, if both the inlet and outlet fittings were enlarged and if venturis were used.

Installation of a high pressure, 50 gpm capacity water pump was started in the 105-F Flow Laboratory during the month. Use of this pump will permit flow studies (a) at header pressure corresponding to those existing at the C Pile, and (b) during shutdown periods at the F Pile.

If process tube outlet temperatures are increased, the value beyond which steam will be formed in the rear risers and downcomers will be more closely approached for equilibrium and during-shutdown conditions. A study is being made to determine the temperature above which this would occur for the latter condition and to determine the significance of such formation. It is possible that steam formation could have an adverse effect on slug cooling due to flow reductions and could produce some type of deleterious water hammer effect on the piping. In addition, it might cause the spreading of contamination through the vent at the top of the riser.

Consideration is being given to conducting small-scale laboratory tests in order to study the effects of boiling at slug end caps. It appears that useful data could be obtained in this manner.

A document is being written which will report the results of experimental studies of two phase flow through capillary tubes. This work was done by J. T. Carleton and it is being reported for use at other sites.

Fuel Element Studies

Tests are in progress in the flow laboratory to determine the resistance to water leakage of a modified thermocouple slug and assembly design. The assembly consists of the tubing and fittings necessary to protect the thermocouple leads. This design has provisions for the installation of one thermocouple at the axis and two at the surface of the uranium. A second type of thermocouple slug being tested is one in which the thermocouple is located at the surface of the jacket. Proper mounting of the couple necessitates the use of a welding flux which may render the jacket more susceptible to corrosion. The services of the Water Plant Development Sub-Unit have been secured in testing this slug assembly for corrosion resistance. The services of the Present Canning Sub-Unit of Fuel Technology Sub-Section have also been secured for canning several slugs which will be used either in the laboratory or in the pile.

1203862

Four four-inch standard Hanford slugs were thermally cycled in or near the beta transformation region. Pertinent data are given in the following table:

TABLE I

Specimen No.	1	2	3	4
Recorded Axial Temperature at Full Power, °C	640	700	720	700
Calculated Surface Temperature at Full Power, °C	90	115	130	125
Number of Thermal Cycles	58	50	10	25
Time to Raise Current to Full Power, sec	10	10	10	10
Time to Reduce Current to Zero, sec	5	5	5	5
Time Specimen held at Full Power, sec	15	20	25	20
Change in Reference Length from First to Last Cycle, cm	-0.05	-0.06	-0.02	-0.04
Reference Length Equaled Approximately, cm	9.06	9.75	9.46	9.38

Various aspects of the data presented in the table warrant amplification. The recorded axial temperatures were measured with thermocouples inserted in one-eighth inch holes and located one and one-fourth inch from the end of the slug. Calculations indicate that the axial temperatures at the center of the slug were 20 C to 30 C higher than the values at the recording position. The specific power, about 76 KW/ft, was equivalent to that in the hottest slug of a 1350 effective tube, 1700 MW pile. The results of the tests indicated no radical change in slug dimensions for the conditions encountered. However, they do indicate that there may be a slow dimensional change which appears as a shortening of the slug. Although it is estimated that the change in reference length was measured to an accuracy of only ± 0.02 cm, no detectable change in the corresponding length has been observed in any of the 28 slugs previously cycled at axial temperatures of about 350 C. The effect of maintaining the slugs at the high axial temperatures for extended periods of time could not be determined. Finally, no specimens without thermocouple wells at the axes were tested. Further investigations along these lines are planned.

The extent to which the slug thermal cycling program can go depends in part upon the availability of electrical current. A preliminary investigation has indicated that an addition to the present generating equipment could be made which would permit increasing specific power levels about 50 per cent.

1203363

DECLASSIFIED

DECLASSIFIED

The experimental study of the temperature drop from uranium to aluminum in the case where the metals are "bonded" by a cold-canning technique was continued. Preliminary tests were run on one specimen but the results are questionable due to faulty mounting of one thermocouple. It appeared, however, that the conductance between the metals was quite high and that the temperature drop across this section of a slug would be very low. Work is continuing on this program.

Calculations are being made to determine the increase in process tube flow for a standard annulus which would result from a decrease in slug jacket diameter. This problem is important because pile power levels may soon be determined largely by the amount of water that can be pushed through the pile. It is found that a 30 mil decrease in diameter would result in about a 40 per cent increase in flow for a constant pressure drop across the active zone. However, the flow would be increased only in the upper part of the annulus as long as the present rib heights are used, and slug surface temperatures at the bottom of the slug would be much higher than those at the top. If a means could be found to support the slug in the center of the tube, then the flow increase would be utilized. If the latter could be accomplished, the tube flow conditions would then be similar to those of C Pile.

Work has continued on a document to report probable slug axial temperatures for various specific power levels. The information from thermocouple slugs is being utilized in this study.

The Fuel Technology Sub-Section has proposed the irradiation of hollow slugs in the piles for testing purposes. The anticipated temperatures under the proposed testing conditions were calculated and reported to those concerned. It appears that excessive temperatures will not be encountered.

Other Studies

Special thermocouple lead wires were installed in the DR Pile in order to study the stability of the thermocouple insulation. Of the nine wires under observation, the insulation on all four glass coated wires and three of the five asbestos coated wires has failed. The causes for this failure are unknown, but further studies are planned.

It has been requested by the Metallurgy Sub-Section that the temperature gradient under pile irradiation conditions be calculated for various proposed uranium test specimens. This work is in progress.

A document "The Determination of Radio-Carbon^{14} in a Hanford Pile Gas", S. S. Jones, HW-23047, is being prepared for issuance as a formal report. The work covered by this report was done as a part of another program.

1203364

MECHANICAL DEVELOPMENT

Horizontal Rod Studies

Fabrication of the experimental full-scale, modified control rod system for the B, D, F, DR, and H Piles is nearing completion. With the exception of the rod tip, all components have been completed and are being assembled. After conferring with the ALCOA extrusion engineer, it was decided to redesign the rod tip extrusion to facilitate fabrication. Since it requires approximately six months to secure special extrusions, it will be necessary to fabricate the experimental rod tip on-site from bar stock. This can be done by the time the remainder of the equipment is installed and checked.

The experimental washer seal undergoing tests at 105-C continues to operate satisfactorily. It has not been possible to detect any leakage to date and there have been no indications of rubber deterioration.

Vertical Rods and 3X Studies

Testing of the Electromatic Ball Conveyor is continuing in the 189-D Laboratory. After concluding the tests to determine the effect of foreigh material on ball flow rates, as reported last month, a series of tests has been completed to determine if the equipment will operate when flooded with water. It was found that operation was not seriously hampered with the entire lower horizontal run completely flooded. A considerable amount of water was carried around the ball circuit and partially filled the ball hoppers. This would be very objectionable on the pile and precautions would have to be taken to make sure the balls were reasonably dry so that water would not be carried up to the top of the pile.

Tests are now under way to find out if the balls can be handled when they are thermally hot. If the balls were withdrawn from the pile before the pile cooled completely, their temperature could be as high as 250 C. This heat source, when added to the normal electrical heating of the coils, could result in overheated coils or coil failure. This condition is being simulated in the tests by heating the balls to 300 C in the storage tank and then circulating them through the electroveyor. Some delay has been experienced in this phase of the test program by burning out of the calrod heaters which are being used to heat the balls.

A new cycling machine has been installed in the 189-D Laboratory to test VSR seals. Provisions have been made to heat the simulated rod to evaluate the effect of heat on the seal assemblies which are to be tested.

Supplemental Control

Reactivity tests were run during the month to evaluate more completely control strength of the "Ink" system. Details of these tests are reported under Pile Physics. Further mechanical modifications have been made to the system to provide automatic flow control. This has eliminated one of the chief operational difficulties. Some trouble is still being experienced with the solution

1203365

DECLASSIFIED

concentration measuring equipment. It is felt that much of this trouble has resulted from lack of experience in servicing this type of equipment. It has not been possible, to date, to get adequate operating and servicing instructions from the vendor, Precision Thermometer and Instrument Company.

One Engineer visited the Harshaw Chemical Company to discuss handling of BF_3 gas. This gas is being considered for use in an alternate supplemental control system. Information gained by these discussions indicate that handling of this gas will not be as difficult as anticipated. It appears that a very simple system can be built which will have many advantages over other proposed systems.

Process Tube Pressure Limits

An experimental program is being initiated to determine the safe maximum working pressures for process tubes in all piles. It is impossible to calculate safe pressures for operating tubes due to many unknowns such as effect of corrosion, tube bending, aging, and irradiation. Preliminary tests will be run in the laboratory to determine the bursting strength of sections of irradiated tubing before actual in-pile tests are started.

Slug Stress Studies

A comprehensive study has been completed, and is being published, on the stresses to be expected from the use of hollow, internally cooled uranium slugs. This study treats specific cases but the equations developed and the methods of attack will be available for further study of the problem of slug stresses.

Rubber Pigtail Tests

Pile tests of rubber outlet pigtails, such as those now on C Pile, have been concluded and it has been clearly demonstrated that neoprene rubber is not suitable for such service. The rubber on the inside of the tubing deteriorated quite rapidly but it has not been determined if this was the result of radiation, high temperature, or chemicals in the water. Permanent metal connectors have been procured for installation on the rear of C Pile so no operating problems are anticipated.

SPECIAL IRRADIATIONS

Fission gases from the 85 mg. sample of 93 per cent U^{235} enriched uranium continue to be released at an approximately linear rate. Approximately 0.07 ccs of gas (at standard conditions) have been released.

The experimental assembly for the determination of the creep rate of fuel pins for SIR has been charged into the F Pile Flow Laboratory for out-of-pile studies. All but one of the specimens are operating satisfactorily. A second creep study pertaining to the creep rate of copper is also being operated under out-of-pile conditions at B Pile.

1203366

Operations pertaining to Project Nutrino at C Pile have been indefinitely suspended. No announcement of the results of these studies has been made by the Los Alamos personnel.

Assembly of equipment for the charging of the experimental unit containing control rods and shielding cans for SIR is nearing completion. Preparations to commence the in-pile studies of power generation from germanium p-n junctions bombarded by fission fragments are complete.

The irradiation of materials for the production of isotopes proceeds. Numerous irradiations to study the damage due to gamma radiation have been completed.

Quantitative spectrographic analyses of DR-10 and H-10 slugs have been obtained. The evaluation of these analyses is in progress to determine the adequacy of shielding for the P-10 operations.

A second thermocouple assembly, designed to study the calibration characteristics of iron-constantan and chromel-alumel thermocouples, is ready for charging into F Pile.

All equipment has been assembled for replacing the B-type facility in F Pile.

GRAPHITE STUDIES

Pile Monitoring

The third mining traverse was obtained at C Pile. Tube 1870-C was mined for graphite powder samples on May 11. X-ray examination of these samples showed a plateau of damage occurring between 12 and 28 feet from the front Van Stone Flange with a maximum crystal expansion of 1.34 per cent.

The sharp gradient of damage occurs at 12 feet from front Van Stone in contrast to the damage gradient at the other piles which occurs at ten feet. Thus one of the effects of overboring seems to have been to push the front damage peak towards the center of the pile. In addition, the plateau of damage between 12 and 28 feet indicates that the graphite in the central position of the pile is being uniformly damaged along the bore of the central process tube blocks. This is in contrast to the double peak damage profile which characterize the mining traverses taken at other piles.

While the mining traverses at C Pile have indicated sligh radiation damage occurring in the process tube blocks, vertical height bowing traverses have indicated an over-all graphite stack distortion of almost 0.30 inches. This distortion is obviously the result of filler block expansion since the process tube blocks were undercut almost three per cent. The graphite stack distortion observed at C Pile is in qualitative agreement with distortion observed at H Pile during early operation.

An extensive pile graphite monitoring program has been initiated to monitor the effect on graphite of increased power level operation at D Pile under

1203367
DECLASSIFIED

DECLASSIFIED

Production Test 105-534-A, Supplement A. Initial mining and vertical bowing traverses have been made. Analysis of the pile gas by mass spectrometric techniques is being made on a routine basis. No appreciable change in the concentration of carbon monoxide was evidenced the first two days of operation after helium addition. On May 21 and 22, a helium concentration of 20.51 per cent and 22.68 per cent respectively was observed. This confirms the Orsat analysis taken on those days.

A vertical height traverse of the B Test Hole at H Pile was obtained on April 29. The deviations from nominal clearance were only slightly greater than the experimental accuracy of the equipment. The average vertical height between filler blocks was 4.187 ± 0.005 inches and between process tube blocks was 4.307 ± 0.005 inches. Individual filler blocks and process tube blocks were square and the gaps between adjacent blocks were clearly shown.

Graphite Carbon Dioxide - Reaction Rates

The third in a series of a continuous runs in the reaction rate determination of the system carbon dioxide and graphite at 1000 C has been made. The general change in the rate of reaction with oxidation is in agreement with the two previous runs. However, in this determination, the reaction rate increased to a maximum of 0.14 gm/gm sample/day at about three and one-half per cent oxidized. This rate is considerably greater than the two previous runs. Between three and one-half per cent and ten per cent oxidation, the reaction appeared to decrease linearly. From 11 per cent to 16 per cent oxidation, the reaction rate increased linearly. This latter straight-line portion of the curve (reaction rate vs. per cent oxidized) is in almost perfect agreement with the two previous runs. It would thus appear that the magnitude and the initial rate of change of the reaction rate under these conditions varies from sample to samples of the same type of graphite while the latter portion is independent of an individual sample. Qualitatively, the oxidation of the intra-crystaline material could be associated with the initial oxidation and the oxidation of the crystalites themselves associated with the latter portion of the curve.

Radiation Induced Reactions

Of the 15 samples of various gas mixtures which were discharged from an annulus tube (0776-H) on Production Test 105-504-E, none were found to have held their partial vacuum. This set of quartz tubes was made on site and visual examination before and after pile exposure gave no indication of any leaks. A new series of 15 samples has been made using a new break-off seal and also sealing off the old style break-off seal. Prototypes of both types of seals will be prepared and stored in the laboratory for comparison to the set that will be charged into the pile.

Change of C_o Spacing with Cold Test Hole Exposure

A re-examination of X-ray data for cold test hole exposure has been made. C_o measurement for a total of 43 samples has been plotted as a function of exposure up to about 1400 MD/CT. Measurements were made upon CSF, CS-GBF, KC and various experimental AGOT graphites prepared by Battelle. All graphites had an initial

1203366

C_o spacing near 6.70 Å. At each exposure, five or six points were available. All X-ray measurements were corrected for penetration. A straight line was fitted to the data by a least squares method. The slope of the line was found to be 7.29 per cent/1000 MD/CT with a standard deviation of 1.17 per cent. The least squares intercept was 6.70 Å with a standard deviation of .029 Å. The previously used value for this slope was 6.5 per cent/1000 MD/CT.

Stored Energy Condition of B, D, and F Piles

A summary of the stored energy conditions which may be considered representative of the B, D, and F Piles has been completed. The piles have been zoned into central and fringe regions on the basis of information obtained from stored energy samples obtained from the piles. From an examination of all available data, typical stored energy gradients for tube blocks and filler blocks for the fringe and central regions have been prepared. By studying the annealing characteristics of samples typical of the tube and filler blocks in the fringe and central zones, and by taking into account the total stored energy in these various zones, it has been concluded that at present, little likelihood of a stored energy thermal surge exists. From the collected data, one can approximate the pile temperatures which would be obtained under various conditions of stored energy release. The information will be published in a formal report.

Thermal Conductivity of Graphite

An apparatus has been designed, constructed, and tested for measuring the thermal conductivity of unirradiated graphite. The apparatus will measure a graphite with a thermal conductivity equal to or greater than 0.15 cal/cm/sec/°C. The apparatus utilizes a simple sink-source method and will determine the thermal conductivity with at least six per cent precision in an operating time of from 15 to 40 minutes per sample. The apparatus is simple to operate and by running more than one apparatus simultaneously, the average time of running any particular sample can be greatly reduced. By using this method to obtain the thermal conductivity of certain of the graphites, it is anticipated that a significant decrease of cost for this particular measurement can be obtained.

Graphite Burn-Out and Surface Area

The reaction rate of the carbon dioxide graphite reaction has been compared with the change in surface area and found to be proportional within certain limits. For this particular experiment, doubling the initial surface area produced a corresponding factor of two in the burn-out rate. Exposures were made for a static system in a water cooled annulus tube at 20 C. The total exposure for these samples was 106 MD/AT. the calculation of the burn-out rate was made on the basis of gas analysis of the system and application of the following equation $C + CO_2 \longrightarrow 2\ CO$. All measurements for the surface area were made by means of nitrogen isotherms.

Surface Changes Caused by Oxidation

A study of the change of pore size distribution with varying degrees of oxidation has yielded information which may be interpreted in terms of a sequence of

DECLASSIFIED

1203039

oxidation events. In graphite, two of the principle peaks in the micropore structure occur at about 30 Å radius and at about 150 Å radius. With increasing oxidation, the peak intensity at 30 Å rises rapidly between zero and about two per cent oxidation. It decreases in intensity between two and six per cent oxidation and changes very little between six per cent and 30 per cent. On the other hand, the peak at 150 Å increases in intensity up to about six per cent oxidation and then decreases for 30 per cent oxidation. These changes can be interpreted to mean that the following sequence of events takes place: 1. Between zero and two per cent oxidation, some type of material is removed which had previously blocked access to some of the 30 Å pore. This type of material may or may not originate from the binder; 2. Between two and six per cent oxidized, the smaller pores are opened to produce larger pores until the blocking material is removed; 3. Beginning at an oxidation somewhat greater than six per cent, apparently some process is occurring which does not greatly effect the distribution of pores in the surface. This could be oxidation of the coke particles.

WATER PLANT DEVELOPMENT

Flow Laboratory Studies

Operation of the five in-pile water quality tests at 105-D Flow Laboratory proceeded. These tests are evaluating the use of lime-free water with a floating pH, and water at pH 7.7 adjusted by sodium hydroxide addition. The high film formation rates reported last month have been reduced by flushing the supply line with a dichromate solution during shutdown. The front tube sections remain free from pitting attack.

Flow laboratory corrosion tests of alum-dichromate water at a flow rate of 50 GPM showed very low slug weight losses, although there were indications of slug chattering in the tube. The horizontal rod test was shut down to allow removal of a heavy scale formation in the rod. The diatomaceous earth test filter has been operated with a filter run of 68 hours; good removal of turbidity and iron has been obtained. Testing of the K-type downcomer is continuing; checks of maximum flow rate are being made.

The scope of the K Flow Laboratory is being prepared on the basis of eight in-pile tubes, with filters and additive equipment, heated mock-up tubes, and no flocculators or settling basins. Provisions are being made for future installation of a recirculating system.

Water Quality Evaluation Studies

Production test operation of the areas using the alum-activated silica treatment continued. High filter rate tests showed that treatment costs at flow rates of 5,000 GPM per filter are roughly ten per cent higher than unit costs at 3,000 GPM. Also, small increases in cotton plug solids may occur at the higher rates. The manganese activity at the alum areas continued higher than normal. Film formation rates were low, and further progress was made in controlling filter

1203370

plant operation by means of Panellit pressure monitoring. A test at DR Pile in which chlorine is eliminated from one-half of the plant showed that chlorine may be a factor in maintaining film rates at a minimum.

The front tube sections of 59 tubes at F and C Piles were examined. No unusual trends were noted.

A correlation was made of slug corrosion rates in three types of water as a function of slug surface temperature.

Recirculation Studies

The in-pile recirculation test continued following start-up of the H Pile after the extended outage. Weight loss measurements of previously discharged low-exposure slugs show a low corrosion rate in steam condensate; it is therefore planned to continue the present test to full exposure. The out-of-pile test using 25 ppm impurity water has been returned to operation following a shutdown due to equipment failure. Recirculating tests have been initiated to determine the effects of variable chloride concentration and variable dichromate concentrations on aluminum corrosion.

Water Plant Capacity Studies

Maximum capacities of the 100-F Water Plant have been summarized in a document issued during the month. Studies are now being made of the technical considerations involved in determining optimum expansion of the present water plants to meet planned pile power level increases.

PILE COOLANT STUDIES

Inspection of tubes removed from the front tube corrosion mock-up after four months operation showed that tubes running on dichromate water (0.1 to 1.0 ppm) contained about two barnacles per twelve foot tube. Those tubes running on dichromate-free water had 300 to 400 barnacles per twelve foot tube. Tube sections from short tube mock-ups at all piles were examined and found to be clean and shiny after 30 days exposure except for a slight amount of barnacle growth along the ribs of the tubes from H Area. A distinct difference in appearance was observed between tubes from the same area before and after dichromate addition.

An impingement test of 0.5 ppm sodium dichromate alum water showed no pitting of the aluminum samples after 25 days exposure. The impingement test apparatus has been set up so that any type of water containing any additives can be investigated. Various inhibitors will be evaluated in this way.

A K-type nozzle was fabricated and tested for one week to determine the danger of impingement attack in the new design. Evidence of attack was found and design personnel notified. The test will be continued.

DECLASSIFIED

1203371

The third test to determine the effect of radiation on corrosion of 2S aluminum showed the same relationship between corrosion rate and flux as the previous tests. This test differed from the others in that samples were located on the inlet and outlet sides of the assembly. Increasing corrosion rates were observed with increasing flux whether the water (at constant temperature) was traveling into or out of the pile. No annealing or recrystallization of these samples occurred.

Inspection of stainless steel nozzles on H and DR Piles has shown that the galvanizing is almost completely removed from them. Roughening of the Van Stone flanges has been observed. Analysis of available electrochemical data led to the recommendation of zinc protective electrodes until aluminum nozzles are substituted.

A survey of available information on purging during operation at reduced power level has showed this to be a successful technique for film removal. A program for the study of full power purging is beginning. Data on optimum concentration, time, plugging tendency, and effluent activity will be used to determine the feasibility of operational purges for film removal.

A total of eight process tubes were slit and examined both before and after film removal: two from C Piles, two from B Pile, and four from H Pile. Metallurgical samples were taken from these tubes for close examination. As a result of the construction of a new type underwater saw, 50 per cent of the tube examination work is being carried out in the 105 Storage Basins. A 700 KW tube from the hot spot at C Pile was inspected. No barnacles or slug junction pitting were found. A small pit near the rib was found ten feet from the front Van Stone flange.

Several summary reports of work that was recently completed are being circulated for approval to be published immediately:

HW-27834, D. R. deHalas, "The Influence of Mercury on Aluminum Corrosion"

HW-27929, W. C. Houck, "Pitting and Corrosion of Aluminum by Water Impingement"

HW-28207, C. D. Wilson, "Flow Laboratory Investigations of F-Type Pitting of Tubes and Slugs".

A Production Test, PT-105-519-E, is being authorized to allow raising the outlet water temperature from a group of nine tubes at C Pile. Three each of these tubes will operate at temperatures of 95, 100, and 105 C. Weight loss, pitting, and film data will be obtained preparatory to raising pile corrosion limits in alum water with dichromate.

1203072

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Signed: R. B. Richards
R. B. Richards
Manager, Pile Technology

RBR:mvt

1203073

DECLASSIFIED

[redacted]
DECLASSIFIED

SEPARATIONS TECHNOLOGY SUB-SECTION

MONTHLY REPORT

MAY, 1953

VISITORS AND TRIPS

C. G. Munger and W. S. Dunning, Jr. visited here from Amercoat Corporation, Seattle, Washington, May 20 and 21, to discuss protective coatings.

A. T. Gresky and E. O. Nurmi visited here from Oak Ridge National Laboratory, Oak Ridge, Tennessee, May 14 and 15, to discuss dissolving techniques and associated problems.

C. M. Thacker, T. H. Davis, C. C. Harris, J. P. Patnovic, and C. C. Lockart visited here from the Savannah River Plant, Augusta, Georgia, May 18 through 21, for a critique of tritium facility plans.

J. T. Stringer visited the Bird Machine Company, Walpole, Massachusetts and Corning Glass Company, Corning, New York for consultations with vendors, and Sleeve Bearing Committee Meeting, Schenectady, New York, May 22 through June 2.

1203874

A. E. Smith visited the University of California, Los Alamos, New Mexico and the Dow Chemical Company, Rocky Flats Plant, Denver, Colorado for process consultation and final inspection and Ames Laboratory, Iowa State College, Ames, Iowa for consultation on equipment related to 234-5 Building, Task II.

ORGANIZATION AND PERSONNEL

Personnel totals are as follow:

	April	May
Administrative	2	2
Chemical Development	86	81
Plant Processes	53	55
P-10 Process Studies	—	6
Total	141	144

Development: One Technical Graduate - Rotational was transferred in from Applied Research, one Technical Graduate - Rotational was transferred in from Manufacturing - Reactor Operations, two Technical Graduates - Rotational transferred to Design - Process Engineering, one Technical Graduate - Rotational transferred to Project - Inspection, Drafting and Estimating, one Technical Graduate - Rotational transferred to Manufacturing - Reactor Operations, one Technical Graduate - Rotational transferred to Fuel Technology.

P-10 Process Studies: The P-10 Process Studies Unit transferred to Separations Technology Sub-Section from Pile Technology Sub-Section.

PUREX DEVELOPMENT

Purex Plant Design Liaison

During the month, specification revisions were transmitted to the Purex Project Unit for the Purex "C"-type, "O"-type, and 2A Columns (HW-27955), documenting specifications of the newly-developed fluorothene sieve plates for the "C" and "O"-type columns, and fluorothene Raschig ring specifications for the 2A Column.

Chemical Engineering Development

Solvent-Extraction Studies - Forty-one Purex solvent-extraction pulse column studies were carried out with "cold" uranium in the 321 Building pilot plant. These included 33 HC, IC, IO, 2A, 2D, and 2E Column H.T.U. and flooding determinations in a three-inch diameter glass column and eight HC, IC, IO, and 2A Column H.T.U. and flooding studies in an eight-inch diameter stainless steel column. The approximate conditions of Purex Chemical Flowsheet HW #2 were employed. Shell Deodorized Spray Base was used as the diluent. In the

DECLASSIFIED

1203375

2A Column studies uranium was used as a stand-in for plutonium. The highlights of the new findings are as follows:

1. There were no signs of delayed instability effects in 72 hours of continuous operation of a three-inch "C"-type column with the fluorothene plate cartridge specified for the Purex plant (fluorothene plates with 3/16-inch holes, 23 per cent free area, spaced four inches apart). Uranium losses were in line with those obtained in shorter-time studies: 0.03 and 0.3 per cent from the HC and IC Columns, respectively, with a nine-foot plate-section height.

2. There was only a slight (about 15 per cent) increase in IC Column H.T.U. on going from a three-inch to an eight-inch column diameter with the above-mentioned fluorothene plates. In the eight-inch column a one per cent uranium loss was obtained with an 8.5-foot plate-section height, indicating a 1.5-foot H.T.U., at 800 gal./(hr.) (sq.ft.), sum of flows, 0.61-inch pulse amplitude, and 50 cyc./min., with the organic phase continuous.

3. In three-inch diameter pulsed 2A Column tests, 0.9-inch O.D. Teflon Raschig rings gave substantially poorer performance (25 per cent lower capacity and 40 per cent higher H.T.U. values) than 1.0-inch O.D. fluorothene or polythene Raschig rings.

4. A 0.14 per cent loss (1.2-foot H.T.U.) was obtained in an eight-inch diameter pulsed 2A Column packed with 8.5 feet of plastic (polythene) Raschig rings, indicating the absence of significant scale-up effects on going from a three-inch to an eight-inch 2A Column. The result confirms expectations, based on HC Column findings, that with ample concentration driving forces the effectiveness of a pulsed packed column should be relatively insensitive to diameter scale-up.

5. Concentration of uranium solution (ICU) without prior removal of TBP by steam stripping or hydrocarbon washing exerted no adverse effect on subsequent processing through three-inch 2D and 2E Columns. The uranium effluent from the 2E Column (2EU) showed no foaming in laboratory calcination tests, which were made after steam stripping and concentration. The stripped 2EU concentrated to 2M uranium contained less than one p.p.m. DBP (dibutyl phosphate). Uranium losses from the 12-foot 2D and nine-foot 2E Column plate sections were 0.003 and 0.008 per cent respectively. The concentration steps were carried out in a single-tube long-tube evaporator.

Liquid-Liquid Phase Disengagement - The liquid-liquid deentrainment effectiveness of the slab-type (safe geometry) disengagement sections ("beaver tails") for the Purex 2A Column was tested by means of a scaled-down model. Excellent deentrainment was obtained at a variety of operating conditions of potential plant interest: 0.05 per cent or less entrainment in the organic effluent (2AP) and 0.01 per cent or less entrainment in the aqueous effluent (2AW).

1203376

Mechanical Development

Pump Development - The 5 H.P. G.E. and C.L. submerged motor pump (graphitar bearings, stellite journals) has operated on life test as an in-line pump for 4700 hours pumping Purex 2EU solution at 18 gal./min. at a pressure of 11 lb./sq.in. Total operation logged for this pump, both submerged and in-line, is 6300 hours.

Plastic Raschig Rings - Raschig rings cut from rigid plastic pipe have been evaluated as a packing material for solvent-extraction columns. Samples of Uscolite plastic pipe (base type unknown) and Triangle PVC (unplastisized polyvinyl chloride) pipe have been statically immersed at room temperature for 51 days in 2 M HNO_3, 20 per cent HNO_3, 40 per cent HNO_3, 60 per cent HNO_3, 50 per cent NaOH, and Spray Base plus 30 per cent TBP. The Triangle PVC pipe was unaffected by all of the nitric acid solutions and 50 per cent NaOH, but swelled slightly and softened in Shell Deodorized Spray Base containing 30 volume per cent TBP. The Uscolite pipe, after 51 days exposure, showed no change in 50 per cent NaOH, very slight swelling in Spray Base plus 30 per cent TBP, and bleaching in 2 M HNO_3 and 20 per cent HNO_3. After immersion in 40 per cent HNO_3 and in 60 per cent HNO_3 for 21 days the Uscolite pipe was blistered and swollen.

Corrosion Studies - Type 304 Stainless Steel Spring. In connection with consideration of the use of springs for holding pulse generator piston rings to a tight fit, specimens of a type 304 stainless-steel coil spring (unstressed) were exposed to simulated Purex 2AW solution at 50 C for 336 hours. The average corrosion rate of these springs was 0.00003 inch per month.

REDOX DEVELOPMENT

Process Studies

Redox Head-End Economics - The estimated cost of operating the new streamlined $KMnO_4$ head-end step in the Redox Plant is tabulated below, along with calculated savings for eliminating one uranium and one plutonium solvent-extraction cycle. These values superseded those which appeared in this report last month.

Process Step	$/Ton of U	Annual Cost, $/2400 Tons
Streamlined Head-End (Approx. Cost)	$100 (a)	$ -240,000
Eliminate one U Cycle	410 (b)	985,000
Eliminate one Pu Cycle	125 (b)	300,000
Potential Annual Savings		$1,045,000

Notes: (a) Based on employing a total of 0.07M $KMnO_4$, and dissolving MnO_2 with excess $Cr(NO_3)_3$ before centrifugation.

(b) These values are based on flowsheet conditions currently in use in the Redox Plant. The incremental out-of-pocket cost of 100 per cent ANN is taken at $0.02825/lb., and the cost of waste tank storage space is taken at $0.32/gallon.

DECLASSIFIED

Process Chemistry

Solvent-Extraction Waste Back-Cycle - Experimental work in the laboratory Mini mixer-settlers to study the back-cycling of combined 2DW and 3DW as 2DS has been essentially completed. The data indicate that the gross fission product content of the back-cycled 2DW-3DW increased with each successive cycle of the four-cycle experiment, as expected, but show also that the D.F. obtained likewise increased, with the net result being a uranium product stream of nearly constant fission-product concentration.

URANIUM RECOVERY DEVELOPMENT

Process Studies

Uranium Recovery Long-Range Planning - At a meeting on May 13, with Manufacturing, Design, and Technical representatives in attendance, a proposed long range program for the Uranium Recovery Plant was presented. This proposed program is being documented in HW-28219.

Calculations are currently in progress to determine the effect which the new product specifications (100 per cent of natural uranium beta and gamma activity instead of the 30 per cent beta and 300 per cent gamma figures originally used) have on the minimum age of waste which may be processed through the existing solvent-extraction columns of the TBP Plant. Whereas the TBP process was originally beta limiting, it is now gamma limiting, with cesium (Cs^{137}) and ruthenium (Ru^{106}) expected to be the main fission products breaking through. Tentatively, it is expected that 3.5 to four-year aged waste can be processed to meet these new uranium specifications, employing the present TBP process and equipment and relying on approximately a ten-fold decontamination factor for ruthenium during calcination.

Chemical Engineering Development

Solvent-Extraction Studies - The flooding capacity of an (unpulsed) RO Column, packed with one-inch stainless-steel Raschig rings, employing two weight per cent Natox commercial-grade sodium oxalate as the ROS (scrub) was determined to be in the neighborhood of 600 gal./(hr.)(sq.ft.), sum of flows, corresponding to about nine tons U/day, based on the 22-inch diameter U.R. Plant RO Columns. The solvent used was 30 per cent (by volume) TBP in Shell Deodorized Spray Base. The aqueous phase was continuous. Flooding, when it occurred, took place by entrainment of gross amounts of aqueous phase in the organic effluent from a heavy interface foam.

Continuous Calcination

The pilot-plant fluidized-bed continuous calciner has been completed and is currently being tested for operability employing MgO in place of UO_3.

The laboratory model agitated fluidized-bed calciner has been completed. The first run was in progress at the month's end.

[redacted]

1203078

Mechanical Development

Rotating Equipment - P-X-19, the 100 per cent UNH pump, a three-stage deepwell turbine pump with nine feet one inch set length, has been equipped with Pyrex No. 7740 glass bearings. The glass bearings were machined for a slip fit in the housings, keyed with soft keys of blue African asbestos, and held in place axially by snap rings. The vapor throttle bushing was Graphitar No. 2. The pump has operated satisfactorily for 30 days with these bearings. Graphitar bearings have exhibited a life of about eight days in similar service.

Base Metal-Ion Contamination in 60 Per Cent UNH - Base metal-ion contamination experienced in concentrating RCU to 60 per cent UNH is being investigated in a single-tube long-tube evaporator and a pot-and-coil type evaporator in the 321 Building "cold" semiworks. Corrosion rates (iron contamination) observed in the long-tube evaporator and the pot-and-coil evaporator were essentially equal. Electrical isolation of the steam stripper from the long-tube evaporator on one test run reduced the iron contamination pickup by a factor of two. Iron contamination pick-up decreased with decreasing nitric acid concentration in the RCU as indicated by the following findings:

HNO_3 Concentration in RCU		
M	% of TBP-HW#4 Flowsheet	Fe Pick-Up, P.P.M.*
0.15 to 0.18	110 to 130	400 to 700
0.05	40	140
0.04	30	75
0.005	4	67

* Parts Fe per million parts U, picked up by solution upon concentration from six per cent to 60 per cent UNH at a rate equivalent to four tons U/day in the U.R. Plant uranium product concentrator (EB-1).

MISCELLANEOUS SEPARATIONS PROCESS DEVELOPMENT

Process Studies

Heat Generation in Waste Storage Tanks - A report, numbered HW-28217, entitled "Heat Generation in Radioactive Wastes", has been prepared. This document presents simplified curves (and equations) from which the heat generated in 200 Area waste storage tanks may be calculated if the integrated exposure and pile power levels are known.

321 BUILDING OPERATION

Construction of the Purex Prototype Facility is approximately 97 per cent complete, excluding the water demineralizer, delivery of which is not expected until July 15. Beneficial occupancy of the prototype facility should occur on or about June 8, with all equipment on hand and installed, except the demineralizer and tank temperature control.

1203879
DECLASSIFIED

DECLASSIFIED

HOT SEMIWORKS

One Redox process run (HR-8) at full Hanford radioactivity level was completed and the processing equipment was decontaminated for maintenance work during the month. Maintenance work is progressing in B and C Cells, and will start in A Cell in the first week of June.

Redox Run HR-8 was made to test the efficacy of the streamlined permanganate head-end treatment at full Hanford radiation levels. In this run the uranium was dissolved by standard up-draft dissolving techniques and the solution brought to approximately two molar in uranium and 0.05 molar in nitric acid.

After two days of standing, $KMnO_4$ was added to a concentration of 0.02 molar and the solution was held at 95 C for one hour. After cooling to 55 C, an additional increment of $KMnO_4$ equivalent to 0.05 molar was added. The solution was then digested one hour at 55 C, one hour at 75 C, and one hour at 95 C with sampling after each digestion period. During this entire digestion period, the solution was sparged with air at a rate equivalent to one volume of air per volume of solution per minute. At the conclusion of the digestion period, $Cr(NO_3)_3$ was added to reduce the remaining permanganate and manganese dioxide to manganous nitrate, plus five per cent excess. The solution was digested one hour at 90 to 95 C, cooled to 55 C, and centrifuged.

The uranium product stream (2EU) had beta and gamma activities of ten and 200 per cent of those of natural uranium, respectively, the residual activity in the 2EU being largely zirconium-niobium rather than ruthenium.

Decontamination of the processing equipment is nearing completion and has followed techniques developed at the Oak Ridge National Laboratory and at Hanford, including water, HNO_3, H_2O_2, oxalic acid, sodium hydroxide-tartrate, and HNO_3-NaF flushes.

The decontamination of the outside surfaces and floors has been effectively accomplished by using a steam jet discharging at high velocity a solution of ten per cent trisodium phosphate directly on the surface with a high steam/solution ratio. The combination of the hot TSP and the abrasive action of the wet steam probably is responsible for the good decontamination obtained.

Conversion to Purex

The Project Proposal for conversion of the Hot Semiworks to a Purex process was completed by the Project Section and incorporated as Part D of Revision I to Project CA-513 (HW-27828) "Expansion of 200 Area Facilities". The design scope for this conversion was completed and documented as report no. HW-27886.

1203880

REDOX PLANT ASSISTANCE

Plant Performance

The Redox Plant operated at a 84.5 per cent time efficiency (IAF Basis) and averaged 4.5 tons of uranium per operating day during the month. Head-end treatment of IAF (i.e., volatilization of Ru with $KMnO_4$ with partial scavenging of Zr-Nb with MnO_2) has been tested in the plant since May 7. During most of these tests, the Second Uranium Decontamination Cycle has been by-passed; however, the uranium product solution has not met the new low gamma specifications for shipment to K-25. Additional tests and procedure revisions are to be made. The following over-all summary of plant production performance for the month of May, compared to April, reflects the improvements in uranium waste losses achieved in May. The effect of the "head-end" treating is not apparent in the monthly summary as abnormally high (3 - 4 per cent) losses in the early part of the month offset the lower than normal losses (.7 to 1.5 per cent) prevailing during "head-end" treatment.

	Approximate May	April
Tons Uranium Shipped	118.5	126.9
Plutonium Processed (Batch Equivalents)	159.4	177.3
Per Cent Uranium to Waste	0.72	1.18
Per Cent Plutonium to Waste	2.04	2.05

Equipment Changes

1. F-8 (ISF) Hammel-Dahl valve stuck open on May 2, and a gasket leak developed at a rotameter flange during a water flush of the jumper. A new jumper (containing eight-mesh stainless-steel screens on both sides of the valve) was installed on May 8.

2. D-12 (Waste Concentrator) Pot No. 3 failed on May 15 because of a leak in a coil just below the inlet manifold. The original D-12 Pot (having a partially-failed coil) has been temporarily installed until a replacement is available. In addition to the coil failure, corrosion of two dip-legs and an overflow line has recently been evident. The primary cause for the coil failure is believed to be corrosion of sub-standard materials (possibly along a pipe weld-seam) necessarily used in the expedited construction of this equipment on-site. However, the corrosion problem which apparently exists is being investigated thoroughly by laboratory studies.

3. D-8 (Waste Neutralizer) Pump was installed on May 19 and is performing satisfactorily. Transfer rates from D-8 Tank to 241-S Farm of 140 gal./min. have been observed.

1203001

DECLASSIFIED

Stack Activity

Activity released to the atmosphere through the ventilation stack is indicated below:

Dates	Curies/day I^{131}	Curies/day Ru	Remarks
April 25 - May 7	0.26 to 2.1 1.0 average	0.004 to 0.035) 0.007 average)	Before Head-End Treatment
May 7 - May 25	Same	0.1 to 1.3) 0.5 average)	During Head-End Treatment

The source of the additional Ru activity is evidently the vessel vent system for the H-1 (IAF Make-up), H-2 Centrifuge, and H-3 Slurry Tank. Venting revisions are to be made to connect these tanks to the H-5 Ruthenium Scrubber system.

Process Performance

The following tables summarize decontamination performance data by solvent extraction cycle for two indicated conditions. Because samples of individual column aqueous waste streams cannot be obtained regularly, over-all waste losses only are given:

Period covering May 10, 1953, to May 18, 1953; nominal production rate of 5.0 tons U/day, processing 85-day "cooled" metal with $KMnO_4$ volatilization of Ru and partial scavenging of Zr-Nb with MnO_2.

Cycle	Gamma Decontamination Factors (dF) U 3 Cycle	U 2 Cycle	Pu	Per Cent to Waste U	Per Cent to Waste Pu
Feed Prep.	0.5	0.5	0.5	0.09	0.24
1st	4.0	4.0	3.8	—	—
2nd U	1.8	—	—	—	—
3rd U	0.6	1.8	—	—	—
2nd Pu	—	—	2.0	—	—
3rd Pu	—	—	0.9	—	—
Overall	6.9	6.3	7.2	0.4	1.4

[redacted]

1203002

Period covering May 18, 1953, to May 25, 1953; nominal production rate of 5.0 tons U/day, processing 90-day "cooled" metal with $KMnO_4$ volatilization of Ru and complete dissolution of MnO_2 without scavenging of Zr-Nb.

Cycle	Gamma Decontamination Factors (dF) U	Pu	Per Cent to Waste U	Pu
Feed Prep.	0.03	0.03	0.02	0.18
1st	4.2	4.1	—	—
2nd U	By-passed	—	—	—
3rd U	2.0	—	—	—
2nd Pu	—	1.8	—	—
3rd Pu	—	1.2	—	—
Overall	6.2*	7.1	0.2	0.7

* Uranium solution fission product gamma activity is approximately 20 per cent Ru and 80 per cent Zr-Nb and total gamma activity averages 300 to 400 per cent aged natural uranium. Thus, the two-cycle uranium product (without Zr-Nb scavenging) does not meet the specification for shipment to K-25. Efforts to achieve partial scavenging on a consistent basis are continuing.

Feed Preparation

The dissolvers were charged during the month with 24 4.95-ton charges of uranium having an average pile exposure of 566 (507 to 598) MWD/T. The procedure for dissolving 4.95 tons of uranium in two cuts has been continued. Tests have been performed intermittently (by Manufacturing Process Control personnel) to determine the effect of acid addition in increments rather than in one initial charge; quantitative conclusions have not yet been made.

The average age of 33 IAF batches prepared was 89 (82 to 102) days. Thirteen IAF batches were prepared using the standard dichromate oxidation technique. Twenty IAF batches (S-53-5-HE-5 through HE-25, excluding HE-10) were prepared by a new Head-End Treatment procedure developed primarily to remove Ru from IAF by $KMnO_4$ volatilization. Briefly, the dissolver solution treatment procedure is as follows:

(1) 0.02 M $KMnO_4$ "sacrificial kill" (1 hour at 95 C) followed by
(2) 0.05 M $KMnO_4$ oxidation for Ru volatilization and Pu oxidation (2 hours at 95 C)
(3) reduction of residual $KMnO_4$ and dissolution of MnO_2 with Cr $(NO_3)_3.9H_2O$ at 95 C (1 hour),
(4) centrifugation of solution to remove residual solids, and
(5) adjustment of IAF acidity for solvent extraction.

Partial scavenging of Zr-Nb has been attempted by incomplete dissolution of the MnO_2.

DECLASSIFIED

1203003

Uranium Extraction and Decontamination

In general, nominal conditions of the ORNL June, 1949 (acid-deficient) Flowsheet (Document HW-22834) were employed for the First Extraction Cycle and the Second Uranium Cycle. The Second Uranium Cycle equipment has been by-passed (on a test basis) since May 14. The Second Uranium Cycle function was transferred to the 3D Column which has continued to operate as a dual-scrub column with the 3DS introduced at the 3DF feed inlet tee and the 3DA introduced at the top of the column.

Plutonium Extraction and Decontamination

The Plutonium Cycle flowsheet was revised on April 30, to incorporate a reducing-type 2B Column with a subsequent continuous oxidation in the 3AF Tank. The flowsheet change was instituted in order to provide:

(1) improved plutonium decontamination,
(2) additional separation of uranium from plutonium, and
(3) increased concentration of plutonium in the 2BP stream which results in,

    (a) reduced cost of operating Third Plutonium Cycle,
    (b) reduced HNO_3 concentration in PR solution, and
    (c) reduced concentration load on PR Cage.

Operation of the flowsheet has been satisfactory, but a quantitative evaluation of the advantages has not been completed due to other process variables.

Process Chemistry

Fission Products in Plutonium Product Stream - Because the occasional breakthrough of high gamma activity into the Pu product stream may frequently be traced to operating conditions which allowed IA, IS, 2A or 3A Column interface displacement into the subsequent columns, it was surmised that the accumulation of solids at the interfaces, acting as scavengers for Zr-Nb might be responsible for the contaminated product during these periods of mal-operation. This was actually determined in the case of a plutonium product solution sample, initially reported to contain approximately 6×10^3 microcuries/gal. of gamma activity, principally Zr-Nb, by centrifuging the sample after analysis and re-analyzing the supernatant. The gamma content dropped to less than 6×10^2 microcuries/gal., and a fine film of solid material was found on the walls of the centrifuge cone. This solid was not further identified, but an additional experiment was run to test the scavenging properties of solids known to be added to the solvent extraction columns via the "cold" process streams. The data show that some scavenging was effected by all three of the solids tested (Al_2O_3, $Al(OH)_3$, Fe). It is possible that this effect is greatly magnified as these solids collect in ever-increasing quantities at the interfaces in the columns during continuous operation.

1203884

URANIUM RECOVERY PLANT ASSISTANCE

Tank Farms - Feed Preparation - Waste Disposal

Sluicing and supernatant blending operations in the "B"; "C", and "U" tank farms was continued and resulted in the delivery of a total of 892,200 gallons of alkaline stored waste containing ca. 247 tons of uranium. When low removal rates were obtained in 101-B due to encountering "hard sludge", high removal rates restored through the use of water sluicing procedures. Maximum removal rates from the three tank farms, on a Friday to Friday basis, of 72.8 tons of uranium were achieved at month end. This high rate was assisted by water sluicing and blending with uranium rich supernatant from 109-U. Feeds produced by this blending technique were uniform and essentially at TBP HW No. 4 Flowsheet composition. Feed uniformity permitted operation of the solvent extraction plant under optimum conditions. The over-all on-stream efficiency for the tank farms was 86 per cent. Operations down-time included 13 hours due to failure of the 101-B Nagle pump and 170 hours due to failure of the 001-UR Johnson sluice pump. Additional interlocks have been provided to prevent transfer of any supernatant to unagitated blend tanks thus minimizing recurrence of delayed neutralization reactions and resulting pressure build-up such as was experienced in the UR Farm with 120 hours lost time due to high-level contamination spread.

Waste concentration of dilute neutralized waste was carried out routinely to yield concentrated waste containing 8.0 tons of uranium (3.5 per cent of RAF). The concentrated waste volume was 112 per cent of the alkaline waste volume removed and equivalent to 4370 gallons per ton of new uranium processed. No unusual difficulties were encountered but several evaporator tube cleanouts with ten per cent nitric acid were required to maintain good heat transfer values. Final waste pH control was reduced to 8 to 9 (from a previous 9 to 9.5) and density control remained at 1.35 (80 C). Clearing point (saturation point) determinations averaged 26 C with a range of 75 C to 10 C. No pluggage of the cross country line occurred.

Solvent Extraction Performance

The solvent extraction batteries processed 233 tons of uranium, including 5.0 tons of re-work, with a waste loss of 3.5 per cent of the virgin uranium. Essentially TBP HW No. 4 Flowsheet conditions were employed using about 23 weight per cent TBP in hydrocarbon diluent as extractant (RAX) in "A" line and about 15 weight per cent in "B" line. Approximate summary data are:

Line	Range of Nominal Production Rates, T/D	Tons U Processed Virgin	Tons U Processed Rework	Average Rate T/D	Average Loss % Feed U(a)	On-Stream Efficiency Per Cent
A	2.0 - 7.2	106	4.5	3.4	3.6	92
B	2.0 - 6.4	122	0.5	4.0	3.8	95

(a) Based on RAW, RCW and ROW stream analysis.

During the last ten days of the month. the tons uranium processed was 48.8 and 53.6 tons in the "A" and "B" lines, respectively. These high rates were made possible through improved sluicing and blending techniques in the tank farms.

DECLASSIFIED

Average RA column waste losses were 3.3 and 3.5 per cent of the virgin feed uranium for "A" and "B" lines, respectively. In general, the cause of high losses was feed with low $K^{1/2}(NO_3)$ values, low uranium concentrations, high uranium feed rates, and/or high ratios of aqueous to organic flows. Of nine interface jettings only one appeared to cause a significant decrease in RA column loss and none appeared to improve the decontamination. Pulse frequencies of 50 or 55 cycles per minute did not show any significant difference in their effect on waste loss; on the other hand, a ten hour test with the same feed source and at the same rate at a frequency of 45 cycles per minute appeared to result in a five-fold increase in waste losses.

RC column losses were generally low, averaging 0.3 and 0.3 in "A" and "B" lines, respectively. The RO column using five weight per cent sodium sulfate as ROS removed about 75 per cent of the uranium from its organic feed stream.

Gross beta, gamma and plutonium logarithmic decontamination factors were 3.6, 4.1 and 1.1 and 4.0, 4.3, and 1.2 for "A" and "B" lines, respectively. The fission product beta activity was generally less than 100 per cent of natural uranium beta activity and 60-hour Y^{90} was a major contributor. The average fission product gamma activity of RCU was 170 per cent. Cesium contributed up to ca. 75 per cent of this activity. A significant fraction of the gamma activity appeared to be ruthenium since UO_3 produced from this material when blended with Redox UNH generally bettered the 100 per cent of natural uranium gamma activity specifications. Attempts to conserve RAS by decreasing the flow to 75 per cent of the HW No. 4 Flowsheet did not show any conclusively adverse effects on decontamination.

Solvent Extraction Tests

A two-day test was performed in "B" line using feed prepared from 101-B sludge (7.3 years) sluiced with 101-BX supernatant (2.4 years) to give a weighted average age of four to five years from pile discharge. The processing rate was three tons of uranium per day. No significant variation in the process performance was noted.

Preparations are being made to operate the RA columns with an intermediate scrub stream to decrease the nitric acid content of the RCU stream. This is desirable to decrease corrosion during concentration in the 224-U Building. Preparatory to the evaluation of this flowsheet change, nitric acid analytical data on RCU batches made with the standard, single scrub RA columns was obtained. With either 13 or 25 per cent TBP in the RAX and essentially HW No. 4 Flowsheet conditions, nitric acid concentration in the RCU is ca. 0.13 M.

Concentration - Calcination

General Performance

During the month, 316.6 tons of U as UO_3 were produced from 1225 calcinations. This total production was composed of a blend of 65 per cent TBP and 35 per cent Redox source uranium. It was necessary to ship five carloads to

1203886

the Harshaw Chemical Company because of high corrosion-product impurities. On the other hand, four additional carloads contained metal impurities at a level acceptable to K-25 on a test basis.

Carload UO_3 analyses showed varying impurity content as a result of corrosion [redacted]

DECLASSIFIED

100 Per Cent UNH Concentration

The general trend toward decreasing over-all heat transfer coefficients is indicative of scaling. Variations are caused by water boil-outs, differences in feed temperatures, and feed velocity changes. Laboratory studies by Process Chemistry indicate that HF or HF-HNO_3 solutions are effective in completely dissolving the silicate-type scale, which is believed to be present in E-D-2. Since the capacity of E-D-2 has been reduced to less than 50 per cent of its original value, a five per cent HF flush has been recommended.

100 Per Cent UNH Pump - Glass Bearings

The X-19 Submerged Pump (for 100 per cent UNH) was installed with six glass shaft bearings (Corning 7740 Pyrex) and one graphitar seal bearing at the top. Performance has been satisfactory for 650 hours of operation as compared to an average life of 150 hours with graphitar bearings. A new, horizontal LaBour, mechanical-seal pump, model DZ-15, was installed for auxiliary service and is expected to be relatively leak-proof and prevent Pot Feed Loop Header freeze-ups while in use.

UO_3 Conversion

Calcination time cycles varied from 6.7 hours to 10.8 hours with the maximum time cycle caused by foaming. Foaming was caused by blending stored, high-DBP-content UNH solution into current feeds. This was the hard-cake-forming X-19 solution which was transferred to RCU Storage Tank X-2 last month. The DBP content of this material increased to ca. 55 parts DBP per 10^6 parts of 100 per cent UNH during storage. The threshold concentration of DBP for foaming is ca. 6 p.p.m.

The installation of UO_3 deentrainment chambers on the calcination pots was completed. Fume-vent plugging frequency has been reduced from about once each five days to about once each month. The uranium content of the Nitric Acid Fractionator (T-D-4) bottoms has dropped from an average value of 0.16 lb.U/gal. before chamber installation to 0.08 lb.U/gal. after installation, for an indicated collection efficiency of 50 per cent for the deentrainment chambers. This value is somewhat lower than actual performance since some uranium is added to T-D-4 by use of RCU Steam Stripper condensate as part of T-D-4 reflux.

Nitric Acid Recovery

The HNO_3 Absorber (TA-1) had an operating efficiency of 100 per cent for the month. A 12-day interim between purges, May 4 to May 16, gave an accumulation of 2047, 6470, and 8112, p.p.m. of chloride for plates 2, 3, and 4, respectively. Since maximum permissible chloride has been established at 500 p.p.m., the analysis checks will be continued at seven-day intervals.

The steam condensate line and reboiler coils of the T-D-4 Fractionator failed resulting in an operating efficiency of the fractionator of ca. 95

1203868

per cent. The coils were replaced by a spare which contained only six coils with welds (two welds per coil). The welds were made by the electric-arc method.

Approximately 72,300 gallons of 48 per cent HNO_3 containing 6158 pounds of uranium were recovered and shipped to the HNO_3 Pump Tank (WR-006) for use in slurry acidification. The amount of uranium present indicated an average of 5.0 lb. entraining per pot charge, representing a 1.3 lb. per charge reduction in comparison with April figures and a 3.5 lb. per charge reduction in comparison with January figures (before installation of the UO_3 deentrainment chambers).

UO_3 Plant Expansion

Temporary construction work in preparation for the expansion of 224-U Building UO_3-conversion facilities has been started. Three of the eight-foot diameter, gas-fired calcination pots were received on site from Luckey, Ohio. They are complete with plows, motors, and drive mechanisms. Two pots are scheduled for installation in the F-Cell Annex, and the third is to be retained as a spare. The Selas propane-gas-fired furnaces are expected to be shipped on or about July 13.

All drawings, except those dealing with instrumentation, have been issued for comment and approval, and all phases of the expansion program are proceeding at a satisfactory rate.

Recent AEC authorization for the allocation of an additional $210,000 for the project brings the total available funds to $330,000.

The modified T-6-4 RCU Steam Stripper installation is tentatively scheduled for completion on or about November 1, 1953.

Process Chemistry

Fission-Product Analyses of RAF and RCU - A complete summary has been compiled of all the fission-product analyses on Uranium Recovery Plant feed (RAF) and the corresponding uranium product (RCU) samples available to date.

The youngest uranium waste represented in the compilation is BX-Farm supernatant (2.2 years old) which was blended with B-Farm sludge (eight years old). The other feeds are about 5.5 years old (from U and C Farms).

While most of the RCU beta activities were well below 100 per cent of the natural U, the gamma values were in most cases above 100 per cent, ranging from 42 to 270 per cent. Beta and gamma dF's (log values) average about four, with little deviation. Cerium (Ce^{144}) in RCU was very low in all cases, with an average (logarithmic) dF of about four. Cesium (Cs^{137}) beta per cent in RCU was low also, with an average dF of about five. Cs^{137} gamma, which accounts for most of the gamma in the feed, gave RCU gamma per cent values from seven to 80. Ruthenium (Ru^{106}) dF's were in most cases in the vicinity of 3.5,

DECLASSIFIED

1203389

with considerable fluctuation from sample to sample. Ru beta per cent in the RCU was very low (two to five), with the Ru gamma per cent again being somewhat higher, averaging about 20. Strontium (Sr^{90}) in the RCU was very low, with average dF's greater than four. Total rare earth dF values fluctuated from two to five, with RCU beta and gamma per cents going as high as 20 in both cases. The Y^{90} results fluctuated widely from sample to sample with dF's ranging from two to five. No appreciable Zr-Nb was found in any of the samples.

The limiting gamma emitters appear to be Ru and Cs, while most of the beta activity (85 to 95 per cent) has been due to Y^{90}.

Solvent Extraction: Decontamination of BX and TX Tank Farm Supernates - Supernates from Tanks 101-TX and 103-BX (aged approximately 2.3 years) were decontaminated in laboratory batch-contact studies (employing 30 per cent TBP) to beta and gamma activities in the neighborhood of ten and 200 per cent of those of natural uranium, respectively. This decontamination was achieved with 45 to 53 per cent uranium saturation in the solvent and five scrub stages employing 2M HNO_3 as the scrub solution. With the 101-TX supernate almost as good decontamination (25 per cent beta, 200 per cent gamma, based on natural U) was obtained with a single scrub stage with 4M, rather than 2M HNO_3 in the scrub. Halving the uranium saturation of the solvent impaired beta and gamma D.F.'s by factors of about 30 and ten, respectively.

Waste Treatment: Reconcentration - The following data were obtained in laboratory reconcentration of underground stored waste from Tank 109-T, to study the possibility of reconcentrating stored waste from the TBP process.

(a) At 25 C the wastes from the TBP process, before reconcentration, contain approximately ten to 20 volume per cent settled solids.
(b) Single-batch concentration of these waste supernatants to 50 per cent of their original volume gives a product with a boiling point of 107 to 113 C, containing approximately five to ten volume per cent solids at this temperature and about 60 to 70 volume per cent solids at 25 C.

UO_3 Reactivity - Results of reactivity tests on plant UO_3 samples during the month are tabulated below. The conversion ratios are based on the Mallinckrodt T-268 standard.

Carloads	Per Cent UF_4	Conversion Ratio
061 through 072	89.6 to 96.1	0.94 to 1.01

Waste Evaporation - The waste evaporators at B and T Plants operated routinely on previous evaporator bottoms to give waste volumn reductions of 31.1 and 40.0 per cent, respectively.

1203090

Z AREA - ISOLATION, PURIFICATION AND FABRICATION PLANT ASSISTANCE

Peroxide Precipitation, Production Test 231-15

Seven S-Plant runs were processed through a first cycle peroxide precipitation with the sulfate-ion concentration at 0.05 M. The cake was given four washes with five Kg. of six per cent nitric acid, it was then filtered using the filter sticks in cell four. The loss to recycle averaged 3.2 per cent and ranged from 1.6 to 5.9 per cent. Authorization for a process change, based on the results of Production Test 231-15 (HW-26491, "Plutonium Peroxide Processing - Prereduction of F-10-P Solutions with Hydrogen Peroxide - Reduction in Sulfate Concentration in Precipitation") authorizing a single peroxide cycle for S-Plant runs prior to the AT concentration and liquid nitrate load out will be issued at an early date.

Plutonium IV Oxalate - Filter Boat

Variations in the filtering procedures for plutonium IV oxalate slurries indicate a possible lowering of the filter times by using improved techniques. One S-Plant run in cell four was thickened to five liters with the filter stick prior to filtering in the filter boat. This run filtered through the filter boat in 15 minutes. A second S-Plant run in cell three was filtered using an initial low vacuum. As the slurry remaining in the precipitator (P-2) decreased from 42 to 33 Kg. the vacuum was increased by ca. five inches of mercury every five minutes until 19 inches of mercury vacuum was reached. A maximum rate of 1.3 liters per minute occurred at 17 inches of mercury vacuum. The rate decreased to 0.8 liters per minute at 19 inches of mercury and remained constant to completion, suggesting that the optimum vacuum for the greatest filtration rate is something less than the maximum.

Purification and Fabrication Building

Task II (Hydrofluorination)

Rehydrofluorination of 20.2 per cent of 168 runs (three runs excluded because of operating error or equipment failure) through Task II was made on the basis of off-standard fluoride color.

The furnaces in Task II are failing due to corrosion - not thermal shock.

Gas samples taken from two HF cylinders filled in August and December, 1951, indicate an explosive mixture of hydrogen and air were present inside the cylinders at the time of sampling. Analyses show six - ten per cent hydrogen in air for these samples.

Mechanical failures in Task II - III conveyor caused spillage of approximately 1000g fluoride this month. Reduction yields for four batches were abnormally low because of this.

DECLASSIFIED

1203391

DECLASSIFIED

Task III (Reduction)

Reduction yields for 138 runs (six runs excluded because of non-standard conditions) averaged 94.1 per cent.

1203892

Experimental Work

It has been determined experimentally that coating thickness variations are quite similar to the best surface temperature variations obtained using imbedded thermocouples. Since surface temperature is a direct function of coil design for any given shape, methods for obtaining uniform temperatures are being pursued.

DECLASSIFIED [redacted]

1203093

234-5 DEVELOPMENT

UNCLASSIFIED
WITH DELETIONS

Purification

Calcium - Plutonium Separation in the Concentration Building Process

From the results of cold, laboratory runs simulating the concentration building procedure for processing master recycle runs, it appears that the unexpectedly large amounts of calcium (up to 8×10^5 parts Ca per 10^6 parts Pu), which have been detected in MRC product solution, had been introduced at some point following the LaF_3 product precipitation. With synthetic feed solutions containing 10^5 to 10^6 ppm Ca going into the by-product LaF_3 precipitation, the LaF_3 product precipitate contained 6700 ppm Ca, denoting a separation factor for calcium of 15 to 150. Incomplete (30 per cent) conversion of CaF_2 to $Ca(OH)_2$ resulted from use of the standard metathesis procedure. Consequently, any calcium left in the LaF_3 product precipitate, or introduced at that point, will carry fluoride into the MRC product solution, which in turn will interfere with plutonium peroxide precipitation in the 231 Building.

Preliminary results indicate that as much as 1000 grams of aluminum per master recycle run can be tolerated in the concentration building process, with only slight increase in losses in the LaF_3 precipitation steps.

Gas Evolution from Concentrated Plutonium Solutions

Laboratory-scale, storage tests simulating sealed sample can conditions, have confirmed the observations, previously made during storage at AT solutions in sample cans, that 1) the rate of gas evolution from AT solution is decreased by several weeks' storage, even if the pressure is released prior to measurement of the rate; 2) the gas above the solution becomes enriched in oxygen, hydrogen, and carbon dioxide; and 3) the rate of gas evolution averages 20 to 50 cc per kilogram of plutonium per hour, during the first two weeks of storage.

Reduction

Evaluation of Off-Standard Fluorides

Laboratory reduction (40 gram-scale) of two samples from a "blue" plant fluoride, one taken before refluorination and the other after, gave yields of 92.8 and 92.6 per cent, respectively (calculated on the assumption that the powder was PuF_3).

UNCLASSIFIED
WITH DELETIONS

1203094

DECLASSIFIED
WITH DELETIONS

234-5 PROCESS RECOVERY - RECUPLEX

The construction phase of the combined Project CG-496, Recuplex Installation, and Project CG-534, Removal of Recovery Equipment in the 234-5 Building, was initiated. The temporary construction necessary for equipment removal was completed and the removal of contaminated materials from Rooms 222 and 223 of the 234-5 Building was commenced.

P-10 PROCESS STUDIES

Effective May 15, 1953, the P-10 Process Studies Sub-Unit was transferred into the Separations Technology Sub-Section in order that closer liaison might exist between personnel of Separations and Technical Sections who are responsible for P-10 operations and P-10 plant assistance, respectively.

Activities of the Sub-Unit continued in the general pattern presented previously: a) extraction plant design and construction liaison; b) extraction operations materials procurement liaison; c) process assistance; d) preparation of a training program for the benefit of Separations Section personnel.

During May, preparation for the training program was completed and the training schedule was arranged for the months of June, July, and August, 1953. Design, construction and procurement liaison proceeded routinely. In addition, members

DECLASSIFIED
1203095

of the Sub-Unit consulted with others regarding: a) analysis of lithium-aluminum alloy for hydrogen; b) reclamation and re-canning of previously produced lithium-aluminum alloy slugs; c) procurement of extraction furnace pots; d) P-10 product analysis and P-10 product specifications; e) required DR-10 load date; and f) tritium accountability.

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

V. R. Cooper

V. R. Cooper, Manager
Separations Technology Sub-Section

June 10, 1953

VRC:mvt

DECLAS[redacted]

1203096

DECLASSIFIED

June 10, 1953

APPLIED RESEARCH SUB-SECTION

May, 1953

VISITORS AND BUSINESS TRIPS

W. Alter, Knolls Atomic Power Laboratory, Schenectady, spent May 27-29 at Hanford making a general survey and also discussing button line chemistry and product specifications.

W. H. Swift discussed separations equipment at Oak Ridge National Laboratory, Oak Ridge, Tennessee on May 1.

J. E. Faulkner and W. J. Ozeroff attended an APS Meeting in Washington, D. C., on May 1-2.

[redacted]

1203097

D. D. Lanning spent May 18-24 at the Vitro Corporation, New York City, discussing critical mass problems in separations process equipment design.

J. E. Faulkner discussed measurements of pile constants at Knolls Atomic Power Laboratory, Schenectady, on May 4-5.

L. L. Burger spent May 4-7 at Argonne National Laboratory, Lemont, Illinois, discussing physical chemistry and cobalt-60 sources.

R. G. Wheeler spent May 6-8 at Sylvania Electric Products, Incorporated, New York City, presenting a paper on metallography.

M. C. Lambert discussed analytical methods at Knolls Atomic Power Laboratory, Schenectady, on May 13. May 11-12 was spent at General Engineering Laboratory discussing the Hanford special X-ray photometer.

J. J. Cadwell spent May 20-22 at Los Alamos Scientific Laboratory, Los Alamos, New Mexico, attending a corrosion symposium and conferring on metallurgy problems.

J. A. Parodi spent May 19-22 with the General Electric Company at Louisville, Kentucky, Cleveland, Ohio and Syracuse, New York, for the purpose of personal interviews.

R. S. Kemper spent May 14-16 in Seattle, Washington, attending an AIME Meeting.

L. R. Boyd spent May 26-28 at Knolls Atomic Power Laboratory, Schenectady, for the purpose of personal interviews.

H. R. Schmidt spent May 4 at Reed College, Portland, Oregon, in consultation. May 5-6 was spent at the University of Oregon, Eugene, to assist in giving an MA examination.

F. W. Albaugh spent May 25-27 at Knolls Atomic Power Laboratory and General Engineering Laboratory, Schenectady, discussing reactor, metallurgy and separations programs and GEL assistance.

ORGANIZATION AND PERSONNEL

Personnel totals as of May 31 were as follows:

	Exempt	Technical Graduates		Non-exempt	Total
		Permanent	Rotational		
Physics Unit	28	3	1	9	41
Metallurgy Unit	39	4	2	25	70
Chemistry Unit	51	2	1	14	68
Administration	2	-	-	1	3
Total	120	9	4	49	182

1293898 DECLASSIFIED

DECLASSIFIED

Applied Research Sub-Secti

METALLURGY

Effects of Irradiation on Properties of Uranium

Preferred orientation studies have been completed on 20 uranium metal specimens which are to be in-pile tested to determine more explicitly the correlation of dimensional instability upon irradiation with preferred orientation. These samples represent various types and degrees of crystallographic orientation and will be pile tested at several exposure levels to determine if the magnitude of the dimensional changes which occur as a result of irradiation is a linear function of total integrated exposure. Additional samples which will also be included in the production test are currently being machined and metallurgically examined.

The machining of tensile and impact specimens for use in determining the effect of irradiation on the mechanical properties of uranium metal is nearing completion. Data are now being obtained on crystallographic, thermal expansion and electrical resistivity characteristics of this material.

Additional X-ray diffraction patterns have been obtained for a wafer taken from an irradiated slug exposed to approximately 150 MWD/T. No marked changes in preferred orientation, lattice dimensions or other crystallographic features were observed. Samples having approximately 600 MWD/T exposure are being prepared and will be examined in the near future.

Uranium Fabrication Studies

A series of experimental rollings of uranium metal has been conducted using the new oval-round rolls for the six inch rolling mill to determine the total reduction per pass and the optimum schedule achievable using the oval-round pass sequence. Metallographic and X-ray data are being obtained on samples of the rolled sections to follow the amount of cold work and preferred orientation introduced by successive passes through the mill.

Studies of the rate of change of hardness, extent of recrystallization and X-ray line broadening during the annealing of cold-worked uranium are continuing. Metallographic, hardness and X-ray data obtained on samples annealed at 450 C indicate that recovery from effects due to cold-work is nearly complete after five to ten minutes, at which time recrystallized grains begin to appear. Complete recrystallization occurs in one to two hours at this temperature. Future work will consist of similar annealing experiments at lower temperatures.

Bonding Studies

Experimental work is being continued to establish optimum conditions for anodically roughening uranium surfaces preparatory to mechanically bonding aluminum to the uranium by the cold pressing technique. Comparison of the characteristics of surfaces obtained in several bath compositions and the quality of the bond subsequently formed is being made by metallographic examination. Studies are also being initiated to determine the feasibility of using a combination of pressure and fusion welding for the cap-to-can closure of such mechanically bonded pieces.

1283899

Applied Research Sub-Section

Replacement of Hydrofluoric Acid in 234-5 Operations

Freon-12 - Plutonium dioxide can be freonated readily at temperatures below 500 C when properly prepared by the calcination of plutonium oxalate. However, if the temperature is allowed to exceed 400 C during conversion of the oxalate to the oxide, the resulting plutonium dioxide is very difficult to freonate.

Corrosion tests are being conducted on Freon-12 at 400 and 500 C on nickel, Inconel, Hastelloy A, B, C, and D, Haynes 25, 304 stainless steel, aluminum and copper. At 500 C, nickel corroded least (0.6 mils/month), while 304 stainless steel was most reactive (4.0 mils/month).

Phosgene - Phosgene gas at 600 C has been found to be a more rapid and efficient chlorinating agent than carbon tetrachloride vapor. At lower temperatures product quality is satisfactory but the reaction is of course slower, becoming extremely slow below 400 C.

Corrosion of copper, 309 stainless steel, Inconel, Hastelloy B, and platinum by phosgene has been found to be excessive. Again nickel was found to be the least reactive metal tested thus far, being attacked at a rate of 14 mils/month at 600 C.

Plutonium Trichloride Reduction

Additional stationary bomb reductions of plutonium trichloride have been conducted to establish the minimum calcium-iodine booster required to give high metal button yields. The low yields (less than 90%), previously obtained in single experiments at booster to plutonium mole ratios of 0.2 and 0.3 were shown to be due to the unreactive nature of the particular trichloride used, which was visibly "off-color". Recent bomb reductions carried out with properly prepared plutonium chloride resulted in a metal yield of 98.8% at these low booster to plutonium ratios. Accordingly, several bomb reductions using cerium as a stand-in for plutonium have been carried out without the addition of any calcium-iodine booster. Reduction yields of 93-95% were obtained, which are regarded as encouraging considering the small scale at which the reductions were conducted. In the single plutonium chloride reduction without booster conducted to-date, the external temperature of the bomb was inadvertently about 200 C too low for this type of reduction and consequently a yield of but 72% was obtained.

Electrolytic Reduction of Plutonium

Two additional electrolytic reductions from molten inorganic salt baths using cerium as a stand-in for plutonium have been performed at temperatures above the melting point of cerium metal. The recovered cerium metal reacted rapidly with water and analyses of the metal showed the presence of potassium, lithium and chloride to account for 18% of the product.

Equipment corrosion continues to be a major problem. The zirconium cup which is used to collect the molten cerium has corroded badly and molybdenum lifters

1203900

DECLASSIFIED

DECLASSIFIED

for the zirconium cup have failed about one inch above the molten bath surface. The salt bath, consisting of molten potassium chloride-lithium chloride, diffused through the 3/8 inch walls of the graphite pot at a rate of 80 cc per hour. Tests made with magnesia reduction crucibles showed them to be totally unsatisfactory.

Recovery of Plutonium from Skulls

Preliminary investigation indicates some promise for the direct recovery of plutonium by remelting plutonium skulls in an open pot furnace. The procedure consists of adding the plutonium skull and associated oxide to a molten mixture of calcium metal and calcium chloride-calcium fluoride eutectic. Addition of the skull to the molten mixture proceeds smoothly but some flashing is observed upon the addition of the powdered oxide. In the first experiment, about 50% of the skull was recovered as a metallic plutonium button.

Physical Properties of Plutonium

A plutonium billet originally 7/8 inch in diameter and 4 inches in length was reduced in area 92% by repeated rolling and annealing cycles. Work hardening during the rolling produced several internal cracks probably due to rapid transition of delta phase material to alpha material. Since plutonium which is properly delta phase stabilized does not develop extreme hardness during rolling, the metal used in the above experiments was probably deficient in alloying element or the latter was badly segregated.

Plutonium Metallurgy Facilities

The thermal analyses equipment is being checked through measurement of the inverse rate heating curves of standard alloys of 50 weight per cent tin in copper and of 75 weight per cent aluminum in silver. With both alloys solid-solid transformations were detected when the furnace was operated with a small temperature difference between the nichrome cylinders. Further, duplicate runs reproduced each other very closely. However, some intermediate arrests were found which possibly indicate gross segregation in the specimen, emphasizing the importance of proper treatment of the specimens previous to thermal analysis.

Non-radioactive metallographic specimens have been mounted in several varieties of plastic casting compounds. Tests are being performed with the plastics to determine their workability, hardness and resistance to chemical attack. The lucite grinding plates for the preparation of metallographic specimens have been received and operate satisfactorily. An electropolishing cell, the last piece of equipment necessary for plutonium metallography, is now being fabricated.

The sealing of the Tukon hardness testing hood has been completed and the leak rate determined. The high vacuum melting furnace is now complete and is being tested with non-radioactive materials.

Irradiated Slug Examinations

Detailed examination of the two ruptured, unbonded C metal slugs from tube H-0565

1203901

showed a hole and a channel for water entry under the jacket in the weld of each slug. Metallographic examination of a transverse section through the ruptured area showed the normal pattern of elongated grains usually found in the region of a tensile failure.

Surface inspection of an irradiated powder metallurgical slug was accomplished through use of a replicating technique which involves making a surface mold and then centrifugally casting a low melting alloy into this mold. This procedure revealed numerous conically shaped holes in the aluminum can walls which extend into the wall as if penetrated by a dull pencil point. Upon checking previously taken photographs, the presence of these holes was confirmed but had been overlooked in the original examination.

Examination of Other Irradiated Materials

Metallurgical examination of the VSR which failed at 105-B indicated the rod had failed through one of the taper pin holes normal to the axis with no evidence of fatigue marks on the broken surface. Hardness values of the adjacent pieces of the break showed no difference even though the bottom piece was heated in the pile for sixteen hours. Metallographic examination will be completed in June.

Metallurgical examinations of two more series of samples from in-pile corrosion testing of 2-S aluminum were conducted to support the work done by the Pile Coolant Effects Sub-Unit. It is planned to obtain metallurgical information before and after exposure on the next set of samples in order to add credence to the data already obtained.

Radiometallurgy Facilities

It is estimated that the contractor will finish work on the 327 Building by June 15, 1953.

The Bergsman micro-hardness tester has been remodeled to accomodate the testing of radioactive metals and its attachment to the metallograph at 111-B is under way.

The final report on the design, construction and testing of the chemical can wall stripper for Hanford fuel elements was issued as Document HW-27748, entitled "A Remotely Operated Unit for Controlled Rate Incremental Removal of Hanford Slug Jackets" by W. E. Roake.

Materials of Construction

Examination of test coupons of SAE-1010 stainless steel which had been exposed one month in simulated TBP waste solutions indicated a low general corrosion rate. The test will be continued another two months in order to obtain more reliable and quantitative pitting rates, which in this preliminary observation appeared rather high.

Several types of stainless steel are being corrosion tested for their resistance

DECLASSIFIED

1203902

to solutions proposed for ruthenium decontamination of first cycle uranium streams. Corrosion rates in mercaptan-containing solutions free of precipitate were very low, consistent with previous observations of corrosion attack in hydrogen sulfide solutions in which corrosion appeared to be due to concentration cells resulting from the presence of copper sulfide precipitate.

Continued investigation of the iron, chromium and nickel pickup of UO_3 product indicated that chromium ion concentrations below 1000 ppm did not affect corrosion of 309SCb steel in boiling 60% UNH solutions. In related studies it was found that corrosion rates due to galvanic action were affected by the length of the liquid path between the two UNH solutions of different concentrations.

A program was initiated to evaluate various bearing materials for Purex equipment handling nitric acid and UNH solution. The test consists of exposing specimens of Graphitar and pile graphite for a period of 120 hours to solutions of various concentrations at various temperatures. No data are available as yet.

The substitution of dry nitrogen for argon gas appears feasible for purging the inside of austentic stainless steel pipes during butt-welding by the inert gas, shielded processes. Corrosion tests indicated no difference in the corrosion rate of butt welds purged with dry nitrogen and those purged with argon.

Study was completed of the mechanical strength of various joint designs for joining tubes to tube sheets for stainless steel heat exchanger equipment. It was found that welding of the tubes produced a strong joint and that any tube rolling added little to the strength of the joint.

Several flexible connectors for the 105-C reactor were examined by sectioning the welds and preparing metallographic specimens. All welds showed evidence of incomplete fusion and/or cracking. It was concluded that the present design was satisfactory but that weld penetration should be increased.

A leak in one of the tubes from the UNH evaporator in the Uranium Recovery plant was located in the center of a longitudinal weld seam and appeared to be the result of corrosion of a fabrication crack. Since the recent failure of the D-12 pot in the Redox plant, a program of corrosion monitoring in this pot and of corrosion testing of materials for the replacement pot has been initiated.

CHEMISTRY

Process Studies

Both the high acid and the high acid-phosphate modifications of Purex #2 flowsheet were shown to yield a two-fold improvement in beta decontamination over the first uranium cycle but unfortunately also gave a product which had three- to five-fold higher gamma content. Consistent with previous observations, the ruthenium was much less extracted at the feed point in the high acid flowsheet but over-all decontamination was not improved when adequate scrubbing was employed. With this high acid flowsheet a hundred-fold greater concentration

of zirconium was extracted into the organic phase but the excess was subsequently removed by scrubbing.

Previously reported laboratory studies had shown that peroxide affects the complex-forming behavior of ruthenium. Application of this observation to the Purex system produced a five-fold improvement in ruthenium decontamination when RAF Purex solution was successively treated with permanganate, peroxide, heated and then carried through simulated Purex extraction and scrubs.

Increased scrubbing in the Uranium Recovery RA column produces an added ruthenium decontamination of 2.5 per uranium stage as shown in Mini runs and in agreement with previous batch studies. At this rate an additional twelve feet of scrub column would improve the ruthenium decontamination ten-fold, thereby permitting the processing of feed solution aged but 2-1/4 years.

Current consideration of ANN back-cycle in the Redox process raised several questions regarding the build-up of uranium, nitric acid and particularly plutonium. A detailed survey of the proposed flowsheet resolved the questions and led to specific recommendations for routine analyses required for adequate process control.

Various alternate methods of uranium slug dissolution are being evaluated in terms of subsequent solvent extraction behavior. Dissolution of irradiated uranium, while bubbling NO_2 through the nitric acid, resulted in a solution which adversely affected ruthenium decontamination in Redox extraction by a factor of ten, consistent with the long-known fact that the unfavorable solvent extraction behavior of ruthenium is associated in part with the formation of nitrogen-containing complexes. However, Purex extraction of a similar solution yielded a normal ruthenium decontamination, thus indicating the beneficial effect, in this instance, of the higher acid concentration.

In further investigation of the effect of phosphoric acid on slug dissolution rate, it was found that concentrations of 0.1 molar or less increased the rate of attack as much as 2-1/2 fold but that higher concentrations actually retarded the dissolution rate.

Laboratory tests of the Purex down-draft dissolver system for recovering nitric acid showed that 3.4 moles of acid are required to dissolve one mole of uranium in reasonable agreement with the Purex plant design criterion of three and in contrast with the present acid consumption of 5 moles per mole of uranium.

Continued work with copper ferrocyanide shows this chemical to be the most satisfactory of those tested for scavenging Uranium Recovery waste solutions. It is particularly effective for removing cesium, the principal long-lived component, and thus gives promise of a procedure which will permit the cribbing of the treated waste solution. Scavenging of RAF in solutions of pH between 2 and 8 yielded beta and gamma decontamination factors in excess of 100 and 200, respectively. The pH range of 4 to 6 is optimum. Similar tests with ferric ferrocyanide yielded beta and gamma decontamination factors on the order of 100 in solutions of pH 2 but provided essentially no scavenging at higher pH, presumably because of hydrolysis of the salt. In both cases decontamination was improved

DECLASSIFIED

1203904

when the scavenging agent was allowed greater contact time with the solution. Tests with ferrous sulfide as a scavenging agent yielded poorer results than those obtained with the copper ferrocyanide.

The use of oxalate in Uranium Recovery scrub solution to improve decontamination from plutonium and certain fission products is under test in the Separations Technology Sub-Section. Accordingly, tests have been carried out which showed that oxalate had no deleterious effect on the scavenging of cesium from Uranium Recovery waste by copper ferrocyanide.

Diphosphine oxide and a diphosphonate have been synthesized as part of the program of evaluating the hydrolysis and uranium complexing characteristics of a series of organic phosphorus compound.

An interesting observation has been made in the course of investigating liquid-liquid interface phenomena. It was found that the presence of the surface active agent Triton N.E. caused a 30% TBP organic phase to disperse more readily in a UNH-HNO_3 aqueous phase but retarded the rate of transfer of uranium across the interface into the organic phase.

Literature surveys have been conducted to evaluate three possible fields of future work. A detailed examination of the status of the dry fluoride volatility separation process indicated that two aspects of the process are particularly deserving of attention, viz., methods for solublizing plutonium fluoride and modification of the flowsheet whereby the first process step would consist of plutonium removal. Another literature survey concerning the use of fluocarbons as a possible pile coolant suggested that the testing of fluocarbons for radiation stability bears further attention. The third literature survey involved an evaluation of high temperature reactions as applied to various separations techniques.

Radiochemistry

In view of the promise of gamma ray absorption as a rapid and convenient analytical technique, attention has been given to the recovery of pure americium as a source for such work. A cation exchange procedure has been developed for the separation of americium from lanthanum and has been applied in the recovery of 4.5 milligrams of pure americium from material contaminated with lanthanum. Work is currently under way to recover a one gram quantity. Another application of americium under consideration is its use with beryllium as a convenient laboratory source of neutrons. In this application it would be substituted for radium in the familiar radium-beryllium neutron source. Americium has the advantages of having no strong gamma emission and being three times more effective than radium per unit weight.

Although intermittent attention has been given for a long period of time to the development of a method for determining neptunium, no suitable procedure had ever been established. Work was completed during the month on a method which appears adequate, giving a recovery of 89 ± 5%. It involves preliminary extraction of plutonium, a TTA extraction of neptunium and subsequent counting with an alpha pulse counter. The method will be employed in the program for

determining the spatial distribution of heavy elements within an irradiated uranium slug and to establish the distribution of neptunium in separations processes.

The absolute counting efficiencies for each of a group of five beta and/or gamma counters was determined for each of eight different radioactive isotopes as an aid to the control laboratories and to various research and development problems. The data allow absolute beta and gamma counting and provide an intercomparison of results obtained on all instruments.

Radiochemical Instrumentation

A beta scintillation counter suitable for in-line monitoring of uranium product solutions was constructed and tested in the laboratory. The scintillation probe of the unit consists of an unsaturated butane derivative which serves as the scintillator and which is dispersed and cast in a sheet of styrene. It is proposed to face this probe with a thin protective film of Teflon. Although the unit will reject beta energies of less than 0.7 Mev and has a counting efficiency only 15% that of anthracene, it was shown to be suitable for its intended purpose. Other scintillation counter developments include the issuance of detailed purchase specifications for a Purex laboratory gamma counter and a beta-gamma spectrometer; and construction and calibration of an improved scintillation counter for the Redox laboratory.

A mock-up unit of a gamma counter suitable for monitoring plutonium in Recuplex waste streams was constructed for laboratory tests. The unit contains a two millimeter thick scintillating crystal which counts the weak X-ray emission from plutonium with but minor interference from the stronger gamma emission from fission products. If the voltage stability proves adequate, in-line tests will be made. Another application of weak X-ray emission for analytical purposes is that of determining uranium-235 by measuring its 0.18 Mev emission. Preliminary tests show that uranium-235 in the 1-3% concentration range may be measured with a relative precision of ± 10%. A somewhat different approach to this same problem is that of activating the sample and determining the total induced gamma activity as a measure of uranium-235. The purpose of this work is to develop a more rapid method for isotopic analyses of UO_3 product.

Mass Spectrometry

Mass spectrometric analyses of Hanford J-slug solutions at Arco provide the basis for Hanford SF accountability shipments of J-slugs and for checking the calculation of uranium-235 burnout in the Hanford piles. Accordingly, a visit was made to Arco to consult on their analyses. Their analytical procedure was

1203906

DECLASSIFIED

found to be well designed and carefully employed to yield high quality results. A suggestion for an alternate method of calculation which avoids the use of the initial Oak Ridge isotopic analysis was tested and found to check well. The Arco results on the first 47 runs indicate a pile burnout of about 12% whereas the Hanford calculations indicate about 11%. This difference is tending to decrease with successive batches.

Other mass spectrometer activities included issuance of a letter evaluating the various analytical aspects associated with use of the stringent P-10 product specifications; consultation during design of P-10 in-line equipment by the Instrument Design Unit; and installation and testing of a surface ionization unit in the mass spectrometer to yield positive signals from solid uranium samples.

Electrochemistry

A very promising technique is under investigation for the simultaneous determination of high acid and high uranium concentrations in solutions such as Purex feed. The high sensitivity and continuous feed associated with coulometric titrations allows the plotting of a pH curve which indicates the endpoint of the free acid and of the uranium titration. Acid and uranium contents of 1-2 M were determined with a precision of about ± 0.04 M. A modified procedure for the coulometric titration of uranium is under test involving replacement of the lead reductor by an excess of chromous ion, which excess is then back-titrated coulometrically. The method shows no improvement of precision but is simpler and is less susceptible to control laboratory difficulties.

In its present state of development, the coulometric plutonium titration is capable of determining 50 ug of plutonium with a precision of ± 2%. Dissolver solutions which contain about one tenth this quantity may be determined with a precision of ± 4%. A consistent bias of about -2% is present in the latter case, arising from the inability to completely reoxidize plutonium after eliminating nitrate.

Continuing investigation of derivative polarography shows it to be well suited for the determination of uranium in Uranium Recovery waste solutions. The method has been tested with synthetic and actual solutions in the range 0-4 g/l of UNH and plans are under way to employ it in an in-line test.

Spectrochemistry

The spectrographic laboratory has a small but continuing series of requests to classify various stainless steels. Approximately one hour's time per sample can be saved by employing a newly developed procedure which allows direct excitation of a solid sample as compared to the former analysis of a dissolved sample.

A visit was paid to the General Engineering Laboratory to consult on the design of a custom-made X-ray photometer which is under construction there. Approximately 20 different design modifications resulted from these discussions, including items such as shielding, reduction in size and weight, employment of a

detachable sample compartment, location of various components, etc.

Miscellaneous

Preliminary results indicate that impurities in uranium metal are concentrated with the minute inclusions that are present. Separation and analysis of a batch of such inclusions showed an impurity concentration approximately 100-fold greater than in the bulk uranium metal. Microscopic examination revealed that hydrochloric acid tends to attack one face of the crystal and to dissolve out the interior leaving a hollow shell, suggesting that the soluble impurity elements may be trapped in the crystal. It has been known for some time that rolled uranium rod has a higher carbon content than cast metal. On the basis of limited tests, it was shown that cast metal contains approximately 0.1% of inclusions whereas the rolled metal has four times this quantity.

Continued study of anhydrous UO_3 indicated no correlation between its chemical reactivity and infrared absorption pattern although a correlation was shown to exist with the line broadening obtained with X-ray diffraction patterns. Further work will involve similar tests with hydrated samples.

It was previously reported that the newly developed procedure for determining dibutyl phosphate was subject to interference from phosphoric acid. It has been shown that this interference is independent of phosphoric concentration if sufficient of the latter is present. Accordingly, the method was modified to provide for the introduction of an excess of phosphoric acid and the application of a fixed correction factor. Monobutyl phosphate is now the only known interference with the method. At concentrations comparable with that of dibutyl phosphate its effect is rather small; five parts of MBP being equivalent to only one part of DBP.

PHYSICS

Lattice Physics

Experimentation with the 0.926 inch diameter slugs in the 6-3/16 inch and 7-1/2 inch lattices has been completed. Final values of the buckling are summarized in the table below.

BUCKLING OF LATTICES WITH 0.926 INCH DIAMETER SLUGS

Lattice Spacing	Dry	Wet
6-3/16"	115.0×10^{-6} cm^{-2}	98.2×10^{-6} cm^{-2}
7-1/2"	95.3×10^{-6} cm^{-2}	66.4×10^{-6} cm^{-2}

For comparison with the standard slug size results, these values may be plotted versus the graphite to uranium mass ratio per unit cell, as done in Figure 1. It will be seen that the dry buckling values lead to a reasonably smooth curve. In the wet lattice, however, the curves do not match at all for the same graphite

1203908

DECLASSIFIED

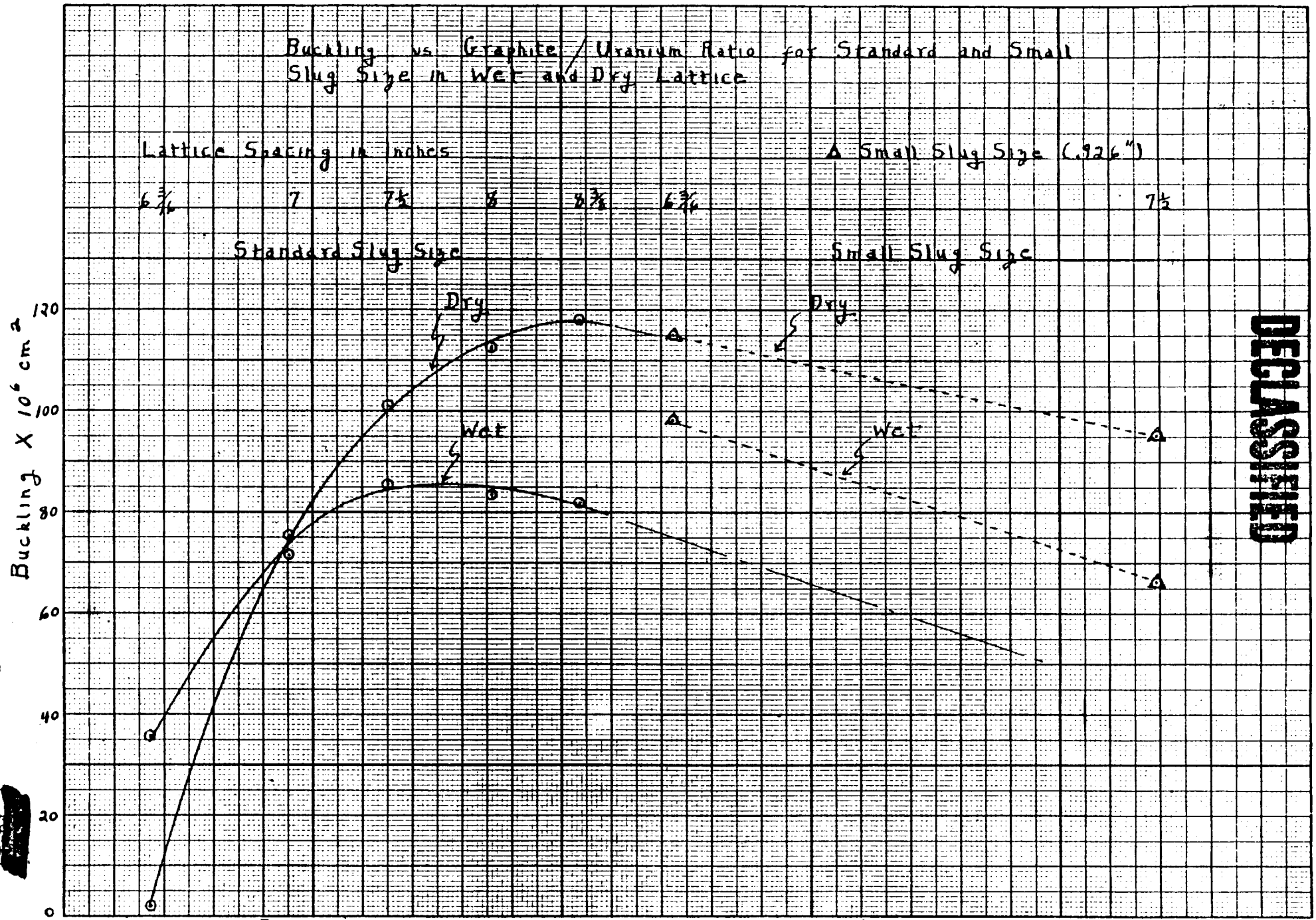


FIG 1 Graphite to Uranium Ratio

DECLASSIFIED

1203989

HW-42267

to uranium ratio. The small slug size curve is shifted upward approximately 25 microbucks, probably due to the smaller amount of water which is used in the small slug size lattice.

Mock-up experiments in the Exponential Pile have been completed. These experiments will partially test the validity of small source lattice theory.

Values have been calculated of the multiplication factor required to give short periods (0.1 to 0.01 seconds) in a small reactor such as the lattice test reactor. Because of the great effectiveness of the reflector and the long life-time of neutrons in the reflector in such a reactor, the increases in K required to give these short periods are rather large. For example, an increase in K of 0.37 would be needed to change the period from 1 to 0.1 seconds. In a large reactor, where the reflector is much less effective, such a change in K would cause a much greater change in period.

Since this data on different size slugs has become available, a parameter survey for these assemblies has been carried out using the methods and formulas of diffusion theory. Results of this survey show that the theory does not agree well with experiment, especially for the wet lattices. Since the principal difficulty appears to lie in the uranium thermal utilization formula, this formula is being revised to account for the neutron utilization more accurately, including the effects of slug end caps.

The large solid metal slugs, 1.66 inches in diameter, are now canned and inserted in the 7-1/2 inch exponential pile. After measurements have been made with these solid slugs, two sizes of holes will be successively drilled in them and buckling measurements with these hollow slugs will then be made.

Using the small source theory, a relationship has been worked out between the blackness of a column and the reactor inverse diffusion length, moderator parameters and the lattice dimensions. This formula had been used to calculate the blackness of P-10 columns in several sizes of lattice which have been measured in exponential experiments. The values of the blackness for dry lattices, ranging from 7 to 8-3/8 inches, are found to be nearly constant, the average being 0.463 with a standard deviation of 0.007. For wet lattices, the blackness has an average value of 0.521 with a standard deviation of 0.019. The absence of a systematic dependence of the calculated blackness values on lattice spacing indicates that the small source model with constant process tube parameters is adequate for handling this type of problem in neutron diffusion.

Recent work has shown that thermal neutron fluxes can be directly measured by foil activation if the foils are made with a $\frac{1}{v}$ absorber and are thick enough to absorb all incident thermal neutrons. Furthermore, the foil's surface area must be small compared to the surface of the sphere generated by the transport mean free path of the adjacent material if the effect of the foil on the quantity being measured is also to be small. Materials for foils must therefore have a very large absorption cross section if their thickness and area are not to be excessive. The only two materials available at present approaching suitability for this type of measurement are europium oxide and dysprosium oxide. The

1203910

DECLASSIFIED

former is unacceptable because an isotope of long-half life is formed by the activation. The latter is also unacceptable because of its smaller absorption cross section which would necessitate a larger foil and thus increase the effect of the foil on the quantity to be measured. No satisfactory material appears to be available at present.

Nuclear Physics

Project engineers are now scheduling the design and fabrication of equipment and shielding for the xenon cross-section experiment to be installed at 100-DR. Fabrication is scheduled to begin in approximately six weeks. The separation line, which has been operating on an experimental basis in the 300 Area, is to be disassembled and moved to 100-DR within the next month.

A xenon recovery of 37% was achieved in a final test run made with the enriched generator slug exposed for four hours in the test pile operating at 100 watts. This represents an improvement of 7% in separation efficiency over the previous runs, probably largely attributable to better release of the xenon from the charcoal traps accomplished by more vigorous heating of these traps. A scintillation counter employing an anthracene crystal is now being used instead of the beta proportional counter for absolute assay of the xenon sample by coincidence counting. The scintillation properties of anthracene are such as to permit ready discrimination against gamma rays in this beta particle counter and to permit beta particle energy analyses by means of pulse height analyses. The glass walls of the sample vessel are sufficiently thick to absorb the xenon-133 beta particles and the xenon-135 internal conversional electrons, thus eliminating any error in counting produced by these particles.

The neutron flux monitors in the carbon-12 cross section measurement, viz., the lithium iodide, cobalt and cobalt-aluminum wire were discharged from the MTR and returned to Hanford this month. The cobalt sample has been dissolved and spectrophotometric analyses conducted by the Chemistry Unit indicate quantitative recovery of this material. Radiochemical analyses of this cobalt, coupled with a scan of the cobalt-aluminum wire and determination of the lithium burnout, will permit a calculation of the thermal flux to which the carbon-12 sample is being exposed.

Recent installation of an improved collimator and shielding assembly for the neutron spectrometer permits increased flexibility and precision in its positioning. The spectrometer is now mounted to allow a motion of the detector arm from 30 degrees on one side of the direct neutron beam to 100 degrees on the other side. Systematic errors in cross-section measurements due to misalignment of the diffracting crystal plane and asymmetrical line diffraction are detectable and can be reduced to the order of 0.01 degrees. In addition, the new collimator allows the intensity of the monochromatic neutron beam to be increased by a factor of three over that obtained with the old collimator. This increase is believed to be due to the elimination of an obstructing plug behind the neutron beam collimator and the elimination of paraffin in the construction of the collimator. Some of the paraffin, originally surrounding the collimating tubes, had melted into the tubes and has now been replaced with selectron. Improvement

in the ratio of net counting rate to background in the energy region above a few tenths of an electron volt has been achieved by using appropriate cadmium filters since it has been found that most of the background is due to diffusely scattered thermal neutrons. Use of this technique, along with the observed intensity increase, should make possible the extension of fission cross-section measurements to several electron volts.

In the process of aligning the spectrometer, an attempt was made to use the instrument for studying the powder pattern from a polycrystalline material. It appears that such experimentation is not feasible with this spectrometer, at least without extensive modification.

Irradiation Physics

A survey is being made of the work which has been done on the chemistry of gases in the presence of ionizing radiations with the expectation that some of the methods used and results obtained can be applied to problems involving gas reactions in the piles.

A survey of the literature on the thermal conductivity of dielectrics is also under way. There is a possibility that previous work on lattice distortions can be extended to include those distortions caused by neutron bombardment.

Plant Physics

Document HW-28036, concerning proposed changes in certain process vessels in the 231 Building, has been issued recommending possible vessel designs which will be critically safe with large concentrations of plutonium for vessels PR-1, S-1 and SR-1. Criticality hazards of certain process equipment for the Purex separation plant were discussed with design engineers of the Vitro Corporation at New York and recommendations made for certain changes in distance between vessels. Calculations have been made to estimate the criticality hazard of supports and piping around the vessels.

Study of the critical mass hazards associated with the railway car used for off-site shipments of plutonium has been completed.

A new set of curves has been derived for estimating the in-hours lost in xenon poisoning as a function of the amount of flattening in a pile.

INVENTIONS

All Applied Research Sub-Section 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 May, 1953 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.

[redacted]

1203912

DECLASSIFIED

DECLASSIFIED

Applied Research Sub-Section

INVENTOR(S)	TITLE
M. T. Walling, Jr.	A New Process for Separating and Decontaminating Uranium and Plutonium from Nuclear Fuels
A. S. Wilson	Chlorine as an Agent for Destroying Ruthenium Nitrite Complexes in Dissolver Solution
R. E. Connally & M. B. Leboeuf	Gamma Ray Photometer
R. L. Brant & R. E. Burns	Copper Ferrocyanide for Removing Cesium from Process Solutions

Signed: F. W. Albaugh

F. W. Albaugh, Manager
APPLIED RESEARCH SUB-SECTION

FWA:ltc

[redacted]

1203913

[redacted]

LABORATORY ENGINEERING AND FACILITIES UNIT

MAY 1953

VISITORS & BUSINESS TRIPS

Two off-site trips were made by members of this Unit during the month.

T.R. Cartmell attended the Electronics Components Symposium at Pasadena, California on May 1, 1953.

G.J. Rogers visited the Argonne National Laboratory on May 4 - 6, 1953 where he discussed problems associated with the design of the high level test irradiation chamber.

One off-site visitor was sponsored by this Unit during the month.

F.J. Wieczorek, Knolls Atomic Power Laboratory, Schenectady, New York, spent May 27 discussing analytical control laboratories with Analytical Laboratories personnel.

ORGANIZATION & PERSONNEL

Personnel totals for Laboratory Engineering and Facilities Unit are summarized as follows:

	April	May
Laboratory Engineering	39	40
Analytical Laboratories	45	45
Equipment and Materials	11	11
Laboratory Facilities	9	9
Administration	3	3
Unit totals	107	108

One steno-typist was hired for Equipment and Materials Sub-Unit to replace a secretary C transferred to Laboratory Engineering Sub-Unit as a replacement for a termination next month. One technical graduate was upgraded to engineer assistant.

[redacted]

UNCLASSIFIED

DECLASSIFIED

LABORATORY ENGINEERING SERVICES

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

Work volume statistics for the Mechanical Shops are as follows:

	Customer Unit or Program	April No. of Jobs	April Man-Hours	May No. of Jobs	May Man-Hours
Work Done on Jobs Completed	Applied Research	39	884	20	396
	Pile Technology	78	1769	37	787
	Fuels Technology	0	0	19	444
	Separations Technology	10	189	2	106
	Lab. Eng. & Facilities	22	452	9	209
	Others	37	286	24	410
	Sub-Totals	186	3580	111	2352
Work Done on Jobs Not Completed	Applied Research	9	587	9	398
	Pile Technology	15	209	17	262
	Fuels Technology	0	0	0	0
	Separations Technology	0	0	0	0
	Lab. Eng. & Facilities	5	685	5	404
	Others	8	322	6	155
	Sub-Totals	37	1803	37	1219
	Total Work Done		5383		3571
Work Backlog			Man-Hrs. to Comp.		Man-Hrs. to Comp.
Jobs Started	Applied Research	9	623	9	587
	Pile Technology	15	715	17	243
	Fuels Technology	0	0	0	0
	Separations Technology	0	0	0	0
	Lab. Eng. & Facilities	5	157	5	307
	Others	8	246	6	178
	Sub-Totals	37	1741	37	1315
Jobs Not Started	Applied Research	4	96	6	278
	Pile Technology	8	291	5	198
	Fuels Technology	0	0	3	195
	Separations Technology	1	341	0	0
	Lab. Eng. & Facilities	1	40	0	0
	Others	1	60	2	86
	Sub-Totals	15	828	16	657
	Total Backlog		2569		1972
These figures include:					
Cross-orders		7	374	1	40
Outside Vendors		1	341	0	0
	Total Net Backlog		1854		1932

[redacted]

The net backlog of 1,932 man-hours will require approximately nine crew-days to complete. The backlog has remained very constant and almost immediate service is available from the shop. The cross-ordering of grinding, heat treating, and structural steel work to other plant shops has aided in maintaining the low backlog now enjoyed by the shop.

The following work was completed for the Technical Units:

Applied Research

Exponential pile process can and tube welding, and fabrication of allied equipment, such as boxes for transporting loaded tubes, required the expenditure of 134 man-hours. Large diameter thin wall aluminum tubes for the hollow slug program were received late in the month and fabrication of end caps and welding of these tubes was started.

Fabrication of miscellaneous parts and equipment needed for the startup of the Radiometallurgy Building required an expenditure of 200 man-hours.

Of special interest was the fabrication of a connector for the parallel mounting of industrial X-ray diffraction tubes. This work required the spinning of two 8" diameter and one 2½" diameter hemispheres from 16 gauge copper sheet. The spinning technique is rarely employed in our work, however these hemispheres were formed without difficulty.

Eight remotely operable containers for transporting small pellets taken from irradiated slugs, and the necessary tongs, funnels, etc. were fabricated on an emergency basis. Shop personnel assisted in the design of the equipment, which was completed in time to meet a scheduled shutdown.

Pile Technology

The only new work started consisted of a series of small jobs. The rectangular rod seal, process tube manipulator, and the slug breaker, previously fabricated were returned to the shop for further modification.

Fuels Technology

Fabrication of split-die assemblies and punches required 20 overtime hours to insure May 11 completion. This work, originally requested by May 1, was cross-ordered to the 234-5 shop due to lack of adequate grinding facilities in the 100-D shop, but was delayed by other urgent work in the 200 Area shop.

A sample holder, box, probe holder, and probe for experiments involving the use of circular metallic pieces were completed. The box was fabricated with four sides of wood, and the fifth side of ½" homolite sheet. The probe holder and probe required the rigid, closely spaced mounting of two ordinary sewing needles with suitable electric contacts to the needles.

Separations Technology

A laboratory model agitated fluid bed was fabricated from stainless steel. The device consisted of an all-welded stainless steel cylinder with a false bottom in the

1203916

DECLASSIFIED

DECLASSIFIED

form of a contoured perforated plate. A fine mesh stainless steel screen was attached to the underside of the false bottom. A four vane agitator installed above the perforated plate was connected to a Graham variable speed transmission which was mounted on a base plate under the true bottom of the stainless steel cylinder. The outside of the cylinder was wrapped with a Calrod unit, the spaces between the Calrod coils were packed with steel wool, and the entire cylinder assembly was enclosed in a 16 gauge stainless steel jacket. The interior surfaces of the cylinder required a fine finish to prevent holdup of the fine powder to be processed through the unit.

Delivery of the sampling equipment ordered last July from an offsite vendor was completed. Numerous delays of completion date and the inability of the vendor to meet Hanford standards cause the delays.

Laboratory Engineering and Facilities

The trial model of an inert gas economizer was completed. The device consists of a small light weight aluminum cup which can be slipped over the end of the ceramic gas cup on the heliarc welding torch. Escape of expensive inert blanketing gases is prevented by an "O" ring seal around the top of the cup. It is anticipated that considerable gas savings will be realized through the use of this device. Further work will be required to make the economizer more convenient to use.

Fabrication of various pieces of equipment for the Laboratory Equipment Development group HDS required the expenditure of 178 man-hours.

Work benches, welding stands, special tool cabinets, etc., which will be needed for the startup of the Mechanical Development Building are being fabricated whenever shop time is available and is not required for other Technical programs.

Others

A sleeve and can feed mechanism was started for the Design Section. The device is needed for the 300 Area mechanization program.

Fabrication of parts for the Hanford slave manipulators to be installed in the Radiometallurgy Building required 188 man-hours. The manipulators are now complete in all details except the introduction of fluid into the hydraulic system. This phase of work will be completed by Laboratory Equipment Development personnel.

Emergency fabrication of sheet metal parts for Juno survey meters was accepted on a cross-order from the 3717 Building Shop, since the sheet metal backlog in the Mechanical Development Shop did not require that sheet metal facilities be held open for Technical Section use.

GLASS SHOP

Work volume statistics for the Glass Shop are summarized as follows:

	April	May
New Jobs	97	89
Revisions	21	22
Repairs	9	14
Total	127	125

[redacted]

1203917

Of this total there were 24 jobs requiring quartz fabrication. The shop is currently operating with approximately one crew day backlog of customer work. Crew time is being spent in building supplies of apparatus components in anticipation of heave demands as the Laboratory Area facilities are occupied.

Equipment Development

Work volume statistics for Equipment Development, expressed as man-hours, may be summarized as follows:

	April			May		
	Eng.	Misc.	Drafting	Eng.	Misc.	Drafting
Pile Technology						
Pile Materials	9	5	36	10	20	161
Pile Engineering	32	26	26	19	21	90
Pile Services	-	5	28	-	1	12
Fuel Technology						
Pile Fuels	52	114	256	148	102	391
Pile Materials	23	6	-	64	22	-
Separations Technology						
Chemical Development	128	70	119	149	94	112
Applied Research						
Chemistry	210	172	401	257	146	133
Physics	11	-	10	14	3	17
Metallurgy	412	187	186	408	193	207
Manufacturing						
Process Assistance	81	157	10	45	151	66
Lab. Engineering & Facilities						
RDS #TC-1	1042	262	507	640	129	279
Engineering	288	388	142	598	288	127
Tech. General	-	-	39	-	-	32
Miscellaneous						
AEW-(6559-999)	-	-	-	-	6	46
Totals	2288	1392	1760	2352	1176	1673

Principal development activities are indicated below:

DECLASSIFIED

1203918

DECLASSIFIED

Pile Fuels

Assistance was given in the engineering and design of platen spacers for a 100 ton press, a heater for an extrusion press, a slug centrifuge, an ultrasonic slug tester, a roll-type conveyor, and a chart drive recorder.

Pile Materials

Design was started on an underwater slug manipulator for use with an underwater periscope.

Chemical Development

A number of "hot" laboratory equipment developments and alterations were made. This work included such items as development of a special stroboscope, a glass check valve, an automatic device to prevent water in laboratory air lines from damaging a miniature mixer-settler operation, a "hot" bottle holder, a mirror manipulator, an automatic valve timer, and a "hot" Junior Cave installation.

Chemistry

Part of the equipment for an experimental uranium burning installation was built and tested. Apparatus for heating and remote handling of dissolver solution was devised and placed in service. Scoping was started for the design of a gloved box installation to handle dry fluorine. Several minor equipment alterations and installations were made at the Redox Laboratory.

Physics

Assistance was given in the alteration of an oscilloscope camera.

Metallurgy

The remote "hot" electropolisher was test operated by the use of an aluminum test sample. All eight slave manipulators were put in an operating condition. Development of the high-speed "hot" slug sampler continued with the design of the chip retainer. Design alterations were made in the power supply of a Plutonium X-ray machine. Revisions were made in the designs of a compression die and some tongs.

Process Assistance

Alteration, installation and decontamination assistance was given on various equipment.

RDS #TC-1

The semi-slave type brickpile manipulator was revised after operating tests. Final drawings were prepared for quantity off-site procurement for this manipulator and several other needed brickpile tools. New models were made of the various [illegible] pipetter and the "hot" liquid disconnect mechanism. A simplified remote hand decapper was made. A hand-held pipetter of the oil-displacement, Gilmont [illegible] tor variety was built for brickpile use.

DECLASSIFIED

Successful plastic replicas were made of a type of pistol-grip handle commonly made at Hanford for instruments, manipulators, etc. In the past these handles have been machined at very high cost; it appears now that they can be cheaply molded in large or small quantities. Meetings were held with a plastics fabricator to discuss plastic fabrication of manipulator parts, pipets, etc.

Controlled sandblast decontamination tests were carried out, using stainless steel samples contaminated with dissolver solution. Time comparison studies were made between standard acid bath methods and sandblasting. Sandblasting proved to be both quicker and more thorough.

An electrolytic decontamination method was placed in semi-routine operation for experience testing.

New Laboratory Planning

Mechanical Development Building - Project C-406

This building is approximately 80% complete. The office area partitions are being readied for final painting. Within the shop area the metal partitions are in various stages of completion. The bulk of the remaining construction work consists of completing these partitions and completing the electrical bus duct installation for the machine tools.

Radiochemistry Building - Project C-381

This building is approximately 87% complete which represents about 1% progress for this month. The elevator and dumbwaiter installation is complete. All of the partition sections have arrived but the installation is progressing slowly because of fit-up difficulties. Unfavorable delivery schedules of certain piping fixtures have delayed the final pipe work. At month end, some vinyl flooring had been layed in the offices.

Radiometallurgy Building - Project C-385

This building is essentially complete. The general contractor is presently engaged in final painting and finishing. On May 27, 1953 representatives of the General Electric Company, the Commission, C.T. Main and the construction contractor completed a preliminary "punchlist" of remaining items of work to be completed prior to final acceptance. The necessary arrangements are being made to have a temporary fence erected and include this building in the 300 operational area. This fence work is scheduled to begin June 8, 1953.

Outside Facilities and Utilities - Project C-394

This project is over 99% complete. The difficulties in loading the waste truck at the Retention Neutralization Building have been resolved and the building floors are being painted as the last step of construction.

[redacted]

1283920

DECLASSIFIED

Pile Research and Development Building - Project C-414

A noticeable decline in construction work was apparent during the month of May. Actual construction progressed only 1½% and at months end the building was approximately 86% complete. No material or equipment shortages which would delay construction have been reported.

Laboratory Supply Building - C-458

The project proposal is being prepared for the renovation of the northeast wing of 3706 Building to accommodate the facility.

Solvent Storage Building - Project CA-441

The project proposal was returned by the A & B sub-committee for revision to comply with the recent essentiality regulations.

ANALYTICAL LABORATORIES

The Analytical Laboratory in support of Chemical Research and Chemical Development continued the analyses of samples for Process Improvement, Process Scouting, Process Chemistry, 234-5 Research, Mechanical Development and Chemical Engineering Development. Many fission product analyses were made in support of purex extraction - scrub studies being made on the "Mini" extractor. Numerous analyses were performed to aid in determining the flow of uranium, plutonium, and fission products from experiments investigating the effect of additives on decontamination. The pyrohydrolysis method for halide determination in plutonium salts has again proven to be a satisfactory method. The Gamma Ray Energy Spectrometer continues to be useful. On at least one experiment it was possible to follow ruthenium through the entire experiment with gamma energy data. The X-ray photometer was successfully used for the determination of uranium on eight "hot" dissolver solution samples from Project Bluenose. No serious difficulty was encountered in this work.

The Spectrochemical Laboratory work load from 300 Area Metal Preparation was reduced as a result of a reduced uranium production from the Melt Plant. The impurity analysis of P-10 target material accounted for a large portion of the work load.

The Special Analytical Laboratory performed analyses in connection with a number of plant problems and investigations. A method investigation was completed and a number of P-10 target material samples were analyzed for chloride. A turbidimetric method proved to be adequate and has been turned over to the Metal Preparation, Analytical Control Laboratory to be used for subsequent analyses of this material. The magnesium content of a number of aluminum samples were determined in order that the samples may be used as spectrographic standards. A rather difficult analytical problem has been encountered in the analysis of experimental Redox type samples containing a metallic organic compound. The analyses required are mercury and chloride. Some progress is being made on this problem. A number of weld button samples have been analyzed in support of an investigation of weld failures in the 200 Areas. Combustion analyses were made on pile shielding material, biology samples, weld buttons, and uranium samples from uranium alloys and uranium purity studies.

1203921

The Water Quality Laboratory continued to support the programs of Water Plant Development and Pile Coolant Effects.

The Mass Spectrometer Laboratory was idle for one week due to maintenance work in the 108-B Building in connection with the P-10 Program. Work continued on gas and isotopic analyses in support of the various Technical Research and Radiological Sciences Programs. "One shot" samples of "off gas" from hydrogen fluoride storage tanks, and "off gas" from plutonium storage cans were analyzed without incident.

Work volume statistics for the Analytical Laboratories are as follows:

	April		May	
	No. of Samples	No. of Det'ns.	No. of Samples	No. of Det'ns.
Research and Development				
Applied Research Unit	1756	3575	1696	3246
Pile & Fuel Technology Units	451	5539	262	1512
Separations Technology Unit	779	1441	687	1777
Lab. Eng. and Fac. Unit	3	3	0	0
Process Control	727	3287	500	2596
Others	171	1511	256	3134
Total	3887	15356	3401	12265

Standards and Calibrations	April	May
Number of standard solutions prepared	36	17
Stock solutions dispensed	95	91
Number of calibrations performed	36	16
Number of calibrated glassware dispensed	49	12
Number of checked glassware dispensed	180	85
Total	396	221

DECLASSIFIED

[redacted]

1203922

DECLASSIFIED

EQUIPMENT AND MATERIALS

Material Control, Photographic Services and Miscellaneous Services activity is summarized as follows:

	April	May
Purchase Requisitions		
Total number processed	115	78
Number requiring emergency	0	0
Photographic Services		
Number of work requests	40	38
Number of negatives	140	175
Number of prints	998	794
Number of slides	16	35
Color photos	6	2
Miscellaneous Services		
Stores stock requests	0	0
Office furniture requests	15	26
Office machines sent in for repairs	11	15
Precious metal transactions	16	8
Special messenger trips	44	42
Catalogues and bulletins issued	222	225
Letters written for catalogues and information	216	548
New catalogue additions	155	277

At the request of the Laboratory Engineering and Facilities Unit, the heads of the various groups affiliated with the Research and Development program have supplied Equipment and Materials with inventory lists of all photographic equipment with the exception of motion picture cameras and projection equipment. A reduction in the purchase of duplicate equipment and a higher utilization of existing equipment are expected to result from this program.

LABORATORY FACILITIES

Laboratory Facility services are summarized as follows:

	April	May
Work order processed	62	58
Work requests processed	34	23
Service requests processed	47	60
Special work permits processed	41	46
Key requests processed	25	15

Preparation and preliminary arrangements for the installation of "security" locks, telephones and operating equipment in the Radiometallurgy Building (Number 327) have been made. In addition, assistance was also provided for completion of the Building 327 explanatory booklet to be issued by Laboratory Engineering.

1203923

All other activity associated with waste disposal and building operation continued routinely.

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report. Such persons further advise that for the period covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

J. W. Underwood
Laboratory Engineering and
Facilities Unit

mbs

DECLASSIFIED [redacted]

1203924

MONTHLY REPORT
DESIGN SECTION

VISITORS AND BUSINESS TRIPS

V. N. Krivobok, International Nickel Co., Inc., New York City, visited Hanford April 21 to consult on a solution of metallurgical problems associated with stainless steel, and also attended an ASM Meeting.

H. C. Boardman, Chicago, Illinois, and L. H. Hollmeyer, Seattle, Washington, representing Chicago Bridge & Iron Co., visited Richland May 1 to discuss technical problems on Redox Tank Farm and revisions in ASME unfired pressure vessel code.

A. F. Sperry, Panellit, Inc., Chicago, Illinois, visited Richland May 12-15 to establish design details on pressure and temperature monitor systems for Project CA-512-R.

J. W. Peckham, Bristol Co., Waterbury, Connecticut. visited Richland May 13-15 to follow up on troubles experienced on Building 105-C recorders.

A. E. Tripp, Preload Corp., New York City, visited Richland May 26-27 to discuss prestressed concrete storage tanks.

R. B. Clendineng, Bristol Co., Waterbury, Connecticut, visited Hanford May 26-31 to complete repairs on installed equipment in the 105-C Building.

A. J. McCrocklin visited General Electric Co., Schenectady, New York, April 26-May 7 to assist in analyzer board studies and attended an AIEE Convention in Boston, Massachusetts, April 29.

E. P. Peabody visited C. T. Main, Inc., Boston, Massachusetts, April 26-27 to discuss electrical design of 100-K Water Plant; General Electric Co., Schenectady, New York, April 28-May 1 to assist in analyzer board studies.

W. J. Dowis visited the Snythetic Fuels Plant, U.S. Bureau of Mines, Louisiana, Missouri, April 28-May 2 to interview members of the engineering staff.

J. C. Wood visited the Aluminum Company of America, LaFayette, Indiana, to examine rod sections; Hewitt-Robins, Inc., Buffalo, New York, to discuss fabrication of hose; and J. M. Cranz Co., Buffalo, New York, to discuss fabrication of rubber bellows April 28 through May 3.

E. Hollister and R. A. Ciccarelli visited Puget Sound Naval Shipyard, Bremerton, Washington, May 4-5 for inspection of fuel element canning machine fabrication and assembly.

I. M. Jacobs visited Panascan, Inc., Chicago, Illinois, May 4-8 to establish design details on pressure and temperature monitor systems for Project CA-512-R.

W. E. Clark, Jr. visited Bouillon & Griffith, Seattle, Washington, May 10-12 to discuss engineering problems in connection with Project CA-514.

W. L. Pearl visited C. T. Main, Inc., Boston, Massachusetts, May 10-14 to confer on chemical treatment of water.

C. W. Sege attended a Reactor Shielding Information Meeting, New York City, May 13-14.

A. J. Karnie visited Western Gear Works, Seattle, Washington, May 25 for consultation on design and fabrication of underwater manipulator.

H. W. Heacock visited Nordstrom Valve Division, Rockwell Manufacturing Co., Oakland, California, May 25-26 to obtain design information on operation of quick opening 24" - 400# valves.

ORGANIZATION AND PERSONNEL

Personnel Statistics:

	April 30			May 31		
	Exempt	Non-Exempt	Total	Exempt	Non-Exempt	Total
Design Management	3	1	4	2	1	3
Process Engineering Sub-Section	59	13	72	60	12	72
Design Planning Unit	15	13	28	16	13	29
Design Engineering Sub-Section	85	11	96	85	9	94
Total Section Personnel	162	38	200	163	35	198
Technical Graduates (Rotational)	--	9	9	--	11	11
TOTAL	162	47	209	163	46	209
Personnel on loan to Design Section			3			2

Accessions = 6
Separations = 6

GENERAL

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

	Man Months Expended	% of Total
1952 Expansion Program	111.0*	63.3
Research and Development	28.2	16.1
Other Projects & Design Orders	36.1*	20.6
	175.3*	100.0

Negotiations with Industrial Models for the fabrication of models of 100-K facilities and the 202-A Building were discontinued. The possibility of fabricating on site less detailed models of the reactor and the 202-A Building is being investigated.

*Equivalent man months expended reflects amount of overtime on Expansion Program and other Design Projects.

DECLASSIFIED

DECLASSIFIED

DESIGN DEVELOPMENT

Statistics:

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

		Man Months Expended	% of Total
RDS-10	Reactor Design Development	3.8	13.5
RDS-11	Water Plant Design Development	2.3	8.2
RDS-12	Separations Design Development	4.2	14.9
RDS-13	Mechanical Design Development	12.2	43.2
RDS-14	Utilities & Services Design Development	2.7	9.6
RDS-15	Engineering Standards and Materials Development	3.0	10.6
		28.2	100.0

RDS-D-10 - Reactor Design Development

An engineering study was initiated with the objective of increasing plutonium production rates in each existing area by means of enriched reactor loading and higher tube powers. These gains will be accomplished by increases in water plant capacity and modifications to reactor instrumentation and piping.

Additional services were obtained from the Corps of Engineers in order to gain additional data on prototype shields for 105-K construction. This modified program utilizes limonite-geothite and magnetite aggregates as recently procured for the concrete construction program.

RDS-D-11 - Water Plant Design Development

An evaluation of existing 100 Area water plants is in progress to determine the best means of increasing water plant capacities to meet reactor requirements based on increased power level operation.

The first study that will be undertaken will be an evaluation of the 100-H Area. Current indications are that this plant will be increased in capacity to approximately 64,000 gpm. To realize these flow rates will require additional pumping capacity to be provided to the 181, 182, 183, and 190 pumping stations. This additional pumping capacity will be gained by the addition of new pump sets installed on existing mounts or by the replacement of present units with higher capacity units. Process pump discharge pressures of 550 psi are under consideration.

Since it now appears essential that the process pumping system be revised, consideration is being given to the conversion of steam driven primary process pumps to electrical drives. It will also be necessary to convert the water treatment plants from the ferric sulfate process to the alum-activated silica process. Documents describing these modifications for each area will be issued as the work progresses.

RDS-D-12 - Separations Design Development

The design of the Purex waste storage tanks was reconsidered and recommendations involving major simplifications were made and accepted. The future tanks will have flat bottoms; they will have no water annulus for cooling the walls; the domes will be concrete and not lined with steel; there will be no water-proofing membrane in the vertical walls.

A final report was issued on the ultimate economies that may be realized in the Redox separations process by adoption of back-cycling, precycle flowsheet, cribbing of coating and final plutonium cycle wastes and self concentration of wastes. Further study was made on the actual changes involved in these proposals. It appeared that these changes could be made within the scope of existing authorized projects.

RDS-D-13 - Mechanical Design Development

Assembly of the prototype fuel element canning machine for the Metal Preparation process has been held up due to material shortage pending settlement of a strike at Western Gear Works, which ended on May 18. The promised completion date of work at Western Gear is now June 12, 1953. Work orders were approved and issued for test installation of the canning machine in the 314 Building at an estimated cost of $27,240.

The estimated savings to be realized from the use of mechanized canning in production were reviewed. It is estimated that operating costs, including equipment amortization, will be reduced $228,000 annually, and rejects directly attributable to canning will be decreased by 50 percent, representing a saving of $367,000 annually.

Study of the design of solvent-extraction column interface indicator was continued. Installation of a sensing probe and indicating instrument on a column in the 321 Building is scheduled in June.

Discussions were held with representatives of the Manufacturing Department on two problems of liquid level measurement. It appears that the instrument which was developed for interface location will be suitable. Definite action is pending further test results.

Work on the supports for the revised slurry pumps to be used in the Waste Recovery Facilities was continued, and three drawings of the pump "A" frame and cover slabs were issued and forwarded for approval.

RDS-D-14 - Utilities and Services Design Development

Work is continuing on studies of methods to reduce 100 Areas process steam consumption and methods of providing additional water pumping capacity necessary to attain higher reactor power levels.

Revised specifications on the development of an underground water supply for the 100-C Area were completed and are related to the efforts to provide emergency reactor cooling water. Recommendations are being prepared for submission to the AEC which will postpone the test well drilling program.

1203928

DECLASSIFIED

Work has progressed nearly to completion of the Power Survey assignment which is the Engineering Department's forecast of future electrical requirements of those projects now under design or being constructed at the Hanford project.

RDS-D-15 - Engineering Standards and Materials Development

Cost plus estimated commitments to date for development of engineering standards is $70,030.

The HW Standards Committee approved the following standards and revisions to standards during May:

E-5-28 Outside Radiation Barricade and Pipeline Marker
E-5-31 Railroad Crossings, Revision 1
E-1-16 Graphical Symbols for Maps, Revision 1
B-0-2a Graphical Symbols for Piping, Revision 1
HW-4953-S Standard Specifications for Braze and Braze Welding Miscellaneous Metals and Alloys

The progress on standards and materials development work for May is as follows:

a. One additional Welding Specifications was completed and approved making a total of five Standard Welding Specifications which are 100% complete. Two welding specifications remain to be completed.

b. The new Design Guide book preparation was advanced 20% during the month to 100% complete and the book was issued.

c. The original Standard Books have been rehabilitated and reissue of these books is underway. This work is now considered as 100% complete.

d. An extended test of the feasibility of substituting nitrogen for argon as a purging gas in stainless steel welding was completed. The corrosion test results indicate there is no difference in corrosion rates of welds purged with dry nitrogen from those purged with argon. It was recommended that dry nitrogen be used for purging in place of argon and that dry nitrogen should also be substituted where helium is being used. A considerable cost saving should be realized from this practice.

DESIGN PROJECTS:

Statistics:

Design effort on projects by the Section for the month of May was expended in the following categories:

	Man Months Expended	% of Total
CA-512-R 100-K Reactor	76.5	52.0
CA-512-W 100-K Water Plant	6.6	4.5
CA-513 Purex Separations Facility	17.9	12.2
CA-514 300 Area Expansion	10.0	6.8
Major Projects - Other than Expansion Program	27.1	18.4
Minor Projects and Design Orders	9.0	6.1
TOTAL	147.1*	100.0

*Equivalent man months expended reflects amount of overtime on Design Projects.

1203929

CA-512-R - 100-K Reactor Facilities

Design progress on Project CA-512-R, 100-K Reactor Facilities, was advanced 5.3% during May to 85.7% complete. These percentages of completion are based on 1900 drawings, an increase of 50 above the previous estimate of 1850 due to the addition of drawings for significant differences between KW and KE. During the month, 147 detail drawings were approved, bringing the total to 1538 drawings which have been approved.

Expenditures to date are approximately $1,462,400 against an authorized amount of $2,781,500. At the present level of activity, expenditures are in the order of $144,000 per month.

Seven hundred and eighty requisitions have been issued to date by the Design Section for procurement of engineered items for the 105-KW and 105-KE facilities. The total value of this equipment is approximately $14,240,000.

The Project Committee recommended a gravity flow drainage system for the routing of the 105 Building wastes to the area sewer, the 107 Crib or dry wells, in place of the previously approved system in which the wastes flow through sewage lift stations and pluto filters to 105 Building cribs.

Consideration was given to the possibility of substituting a gamma water activity system for the beta monitor system. However, the design and installation of the gamma system involves a delay beyond reactor start-up before the system could be operative. On this basis, it was recommended that provisions be made for the future installation of a gamma-type system sometime after start-up.

A study was completed and a document issued (HW-27954) on the economic evaluation of the poison column control system. Economic justification was reviewed on the basis of supplementary flexible control and from the standpoint of charging and discharging temporary poison columns during reactor operation. It was recommended that 40 columns be equipped with charge-discharge equipment and that these columns be located in a designated pattern.

The bottom thermal shield cooling tubes were changed from a bayonet-type cooling tube to a simple U-bend tube. As a further increase in safety margin, the U-bends were overlapped so that no two adjacent tubes will become blocked in the event any one tube has a water stoppage. The net result is to reduce the cost of construction while maintaining equal reliability.

The "extremely low water pressure switch" was taken off the #1 safety circuit and added to the Ball Third Safety circuit. This was done to afford complete protection to the reactor a number of hours after shutdown to preclude an inadvertant reactor start-up upon loss of water. By placing the "ELP switch" in the Ball Third Safety circuit, the above protection is provided.

DECLASSIFIED

DECLASSIFIED

The following items were among those recommended by the Project Committee and approved by the Design Committee during May: (1) the inclusion of 12 additional graphite thermocouples in each of the "K" Reactors and the relocation of three existing thermocouples so that additional information correlating graphite temperature with coring can be obtained, (2) a reduction in the pressure of the sanitary water system and transfer of fire and safety facilities from the sanitary to the filtered water system, thereby effecting an over-all reduction in capital investment, and (3) the installation of one-inch schedule 40 carbon steel tubes, spaced at 18 inches on center, in the foundation of the "K" Reactors to dissipate future heat loads which will exist at maximum power levels of the "K" Reactors. In regard to recommendation (3), only the piping in the concrete will be installed with actual tie-ins to await the realization of the higher power levels.

CA-512-W - 100-K Water Plant Facilities

Work continued on the head house. Building 183.1, design to provide for sodium dichromate addition and for possible pH correction by sodium hydroxide. A representative of the Design Section visited Chas. T. Main, Inc. in Boston to work out details of these chemical additions to the water plants. All problems were resolved and a new scope flow sheet is being prepared.

The general and specific requirements for the 100-K Flow Laboratory were developed in conjunction with the Technical Section. This work included study of basic requirements, review of justification and study of preliminary designs. A flow sheet embodying these requirements will be issued for comment.

Review of drawings submitted by the architect-engineer to the Project Section continued through the month.

The second phase of the a-c network analyzer board study at Schenectady was completed during the first week in May. The report of the results of this study is being prepared for issuance.

CA-513 - Purex Facility

Design work on CA-513-B, UO_3 Plant Expansion, was advanced 22% during the month to 94% complete. Of the 45 drawings required, seven were approved during the month bringing the total to 19 drawings which have been approved. Twenty electrical drawings are being revised following receipt of comments, while the remaining six drawings are being delayed due to lack of vendor's information.

Detailed design of the Purex Waste Facility was advanced approximately 6.5% during the month to 28% complete based on 157 drawings required for construction exclusive of standards or study drawings. Nine drawings were issued for comment and six drawings were approved. A scope change, approved by the Design Committee, specifies a flat bottomed concrete tank with steel liner rather than two separate tanks with an annulus and cooling system for the steel tank together with other structural changes which decreased estimated construction costs.

1203931

Over-all detail design of the Purex Outside Facilities was advanced 11% during the month to 76% complete based on a total of 97 drawings required. The AEC approved 16 drawings and revisions to drawings, and five drawings and two specifications were issued for approval. Two vendor's drawings for the export water line were reviewed and approved.

Review of electrical and instrument drawings submitted by the Vitro Corporation was continued during the month.

The Design Committee accepted the Purex Chemical Flowsheet HW #2 and Addendum #1 as the basic information for the Purex Plant design with the exception that a centrifuge should replace the 2T column in the second cycle recovery system. The Addendum #1 was accepted as the basis for rotameter sizing without any scale-up in associated pump and line sizes.

CA-514 - 300 Area Expansion

Detailed design work on the 300 Area Expansion Program was advanced 10% during the month to approximately 30% complete. This does not include the addition to the 313 Building structure and services, which is being designed by an architect-engineer. The architect-engineer submitted drawings of the layout and services of the 313 Building and preliminary designs of the outside acid, caustic and methanol storage facilities for review. Design activities were concentrated on the 313 Building process equipment and remodeling of the existing structure. The Project Committee reviewed proposed scope changes which included a modified slug recovery process, use of well-type caps, an ultrasonic bonding test, electromagnetic penetration testing, ultrasonic transformation testing and radiographic weld examination.

CG-431-B - 100-C Area Production Facilities

Investigation of the vacuum system in the 105-C Building revealed that satisfactory operation can be obtained by establishing new operating procedures and introducing a restricting orifice plate in the Ball Third scrubber line. This orifice plate was designed and drawings issued.

CG-496 - Recuplex Installation - 234-5 Building

Detail design of the Recuplex Installation is approximately 85% complete, an advance of 7% during the month. Design of the waste disposal crib was completed and approved. The crib has a tile-lined concrete slab roof carried by concrete columns. The elimination of the neutralization station makes it necessary to measure the pH in the waste receiver tanks in the reception and blending hood. A study is in progress to develop a satisfactory means of making the required measurement. Fifty-one drawings were approved for a total of 110 drawings which have been approved to date.

DECLASSIFIED

1203932

CA-535 - Redox Capacity Increase, Phase II

Design work on jumpers required in the Phase II Expansion of Redox Facilities was delayed pending advancement of design work on the Redox back-cycle which offered possibilities of reducing the amount of construction required for the Phase II expansion. About 24 jumpers will be required to complete the job. Instrumentation scope for design work, to be accomplished by the Vitro Corporation, was approved and transmitted to the Vitro Corporation.

CA-539 - Redox 241-SX Tank Farm

Design of the Redox Tank Farm sufficient for unit price contracting was transmitted to HOO, AEC, on May 4, and all design work for the tanks was completed on May 22. Of the 71 required drawings, 57 have been started and 50 are approved. The general specifications for the tank farm were completed during the month. Over-all design was advanced 40% during the month to 85% complete.

CG-549 - Activate Task I, Building 234-5

Scoping and preliminary design were started on Project CG-549, Activate Task I, Building 234-5. Initial design work was started on the layout of equipment for the Task I Line. It is estimated that the total design cost will be $60,000 and will require approximately 80 drawings.

CG-550 - Reactivation of P-10 Facilities

Design work on Reactivation of P-10 Facilities is 12% complete. A change of scope of this project increased the estimated number of drawings required from 50 to 90, of which 10 were issued for comment and 3 were approved.

D.O. 100329 - New 2101 Fabrication and Storage Facility

Specifications for the purchase of an intercommunication system were prepared and issued.

D.O.100402 - Repair of 105-D Reactor Effluent Line

All design is complete except electrical and instrument. Preliminary work was done on wiring diagrams and a material list was prepared. Studies of the installation were made and drawings were reviewed in preparation for the revision of the effluent water monitoring systems.

D.O. 100422 - Improved Lighting 700 Area Buildings

The scope of the work was reduced and plans and specifications were revised to bring the estimated cost of the project within available funds. The plans and specifications were completed and approved.

1203933

D.O. 100427 - Expansion of Building 234-5 Facilities

Development of design scope is continuing, principally in the establishment of the Task III basic requirements such as typical hood construction, sequences of components, and spacing and shielding requirements.

The study stage Project Proposal, CG-551, was sent to the AEC and is awaiting Commission approval. The propcsal included the addition of a seventh furnace to Task II, the replacement of Task III equipment and the expansion of the Final Inspection Area at a total estimated cost of $800,000.

D.O. 100444 - Fuel Element Pilot Plant

Design criteria for this building are approximately 95% complete with only minor alterations remaining. This building will contain approximately 28,800 square feet of development area, shops and office space, and is to be located east of the 313 Building in the 300 Area.

D.O. 100473 - Hot Ball Detection, Ball 3-X System

Design is proceeding on apparatus for separating balls of approximately 1R gamma from relatively cold balls. A suitable detection device and a trigger circuit were designed and tested.

D.O. 100474 - Dock and Partition 300 Area Library and Files Building

Recommendations by the architect-engineer and a consulting firm were reviewed, and a scope of work was suggested for obtaining a satisfactory reduction of noise at the least possible cost.

D.O. 100476 - Positive Ion Accelerator Laboratory

Design was advanced 20% during the month to approximately 85% complete. All drawings and rough draft specifications were issued for comment.

D.O. 100494 - Biology Laboratory Additional Facilities - 108-F

Design was continued on additional ventilation facilities for the fourth floor animal rooms in the 108-F Building.

D.O. 100500 - Combined Civil Defense and Plant Disaster Mobile Control Centers

Design on the revision of two existing trucks for use as a mobile control center and service unit was advanced 35% during the month to 85% complete.

D.O. 100513 - UNH Stripper

Mechanical design work is approximately 85% complete with four of a total of nine mechanical drawings issued and approved. The instrument engineering flow diagram is ready for comments.

DECLASSIFIED

1203934

DECLASSIFIED

D.O. 100526 - P-13 Pressure Assembly Removal

Design of the facilities for the removal of the P-13 Pressure Assembly installed in the 105-H reactor was started. A total of six drawings will be required.

D.O. 100529 - Ball Third Safety System - Ball Recovery System

Detail design was started on the revisions to the existing Ball Recovery System as required for efficient operation of the system. A drawing schedule for mechanical design requiring 17 drawings was issued. An electrical design estimate was made and a drawing schedule was made up for the double circuit revision. A total of 37 drawings will be revised covering all areas. A new drawing was sent out for comment. All necessary equipment was ordered for the revision to the system.

D.O. 100539 - Lattice Testing Facility

Preliminary building arrangements, sufficient for a project proposal, of an addition to the 326 Building to house a lattice test reactor were started and three drawings were prepared. The work is approximately 50% complete.

D.O. 100544 - 300 Area Laboratory Supply Space

Preliminary design for a project proposal was completed for the modification of part of the 3706 Building to be used as a storage area.

D.O. 100550 - Hot Semiworks Conversion

Preliminary engineering for the Hot Semiworks Conversion was started. A preliminary estimate of the total design cost is $40,000.

D.O. 100553 - Hanford Works Official Telephone Exchange

Preliminary design was started on proposals which include additions to the 706 Building, additions to the 702 Building and design of a new exchange in the 700 Area.

D.O. 100583 - Redox Waste Evaporator Redesign (D-12)

At the request of the Manufacturing Department, work was begun on the design of a new D-12 pot (Redox waste evaporator). This work was considered of highest priority in view of recent incidents which have resulted in the failure of the original, the spare and the replacement spare pots. Present thoughts on the design of a new pot include (1) minimum welding on the tube bundle, (2) replaceable tube bundles, (3) duplicate tube bundles which normally operate in parallel at relatively low pressure and have sufficient surface to allow one to operate at capacity at higher steam pressures in case of failure of the other bundle, and (4) design for operation at Phase II rates.

1203935

DESIGN SECTION WORK IN THE CLOSING STAGES OR COMPLETED DURING MAY

*D.O. 100346	Auxiliary Civil Defense Control Center
*D.O. 100438	Personnel Meter Gate House Facility Improvement
*D.O. 100547	Public Health Building Painting Specifications
*D.O. 100443	Conductance Cell for Dupenal Bath

*Design Section Work Completed During May.

INVENTIONS

All persons in the Design Section engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

INVENTOR	SUBJECT
R. T. Coffman	Centrifugal Type Shaft Seal

P. H. Beaton
MANAGER, DESIGN

DECLASSIFIED

1203936

DESIGN SECTION WORK STATUS

PROCESS ENGINEERING UNIT
ENGINEERING MAN MONTHS *

Description	Backlog Start Of Month	Orders Received During Month	Time Spent During Month	% of Total Effort	Backlog End of Month	June	July	Aug.	Sep.	Oct.	Nov.	Balance
CA-512-R	421.1		30.9	54.7	390.2	30	30	29	23	16	16	246.2
CA-512-W	35.8		2.4	4.2	33.4	2	1	1	1	1	1	26.4
CA-513	27.7		2.8	5.0	24.9	2	1.5	1.5	1.5	1.5	1.5	15.4
CA-514	31.0		2.2	3.9	28.8	2	2	1	1	1	1	20.8
RDS Program - FY 1953	72.0		17.4	30.8	54.6	18						36.6
RDS - Anticipated FY 1954							19.5	21.5	27.5	34.5	34.5	
Design Orders	13.7	3.0	0.8	1.4	15.9	1	1	1	1	1	1	9.9
TOTALS	601.3	3.0	56.5	100.0	547.8	55	55	55	55	55	55	355.3

DESIGN ENGINEERING UNIT
ENGINEERING MAN MONTHS *

CA-512-R	171.3		24.2	29.8	147.1	20	20	18	15	13	12	49.1
CA-512-W	42.5		3.5	4.3	39.0	3.5	2	2	2	2	1.5	26.0
CA-513	101.8		13.6	16.7	88.2	15	15	11	11	6	3	27.2
CA-514	51.9		6.1	7.5	45.8	6	7	7	6	5	5	9.8
RDS Program - FY 1953	39.2		5.0	6.2	34.2	6						28.2
RDS- Anticipated FY 1954							6	9	11	18	23.5	
Major Projects - Other	81.2	65.0	21.2	26.1	125.0	22	22	22	18	14	10	17.0
Minor Projects & Design Orders	63.4	6.0	7.6	9.4	61.8	7.5	8	10	10	10	10	6.3
Available for Anticipated Future Work						0	0	1	7	12	15	
TOTALS	551.3	71.0	81.2	100.0	541.1	80	80	80	80	80	80	163.6

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

	Authorized Projects	Anticipated Future Work	Total
Architectural & Civil	85.0	37.0	122.0
Mechanical	170.0	62.0	232.0
Electrical	136.0	51.0	187.0
Instrument	114.0	41.0	155.0
Standards	36.1	13.0	49.1
TOTALS	541.1	204.0	745.1

*Exclusive of technical graduates and people on loan from other sections.

RF-14 [redacted]

DECLASSIFIED

[redacted]

HW-28267

MONTHLY NARRATIVE REPORT - MAY 1953

PROJECT SECTION

I. SUMMARY

A. ORGANIZATION AND PERSONNEL

Following its review of increasing personnel requirements, the Project Section presented its findings to the A&B Committee. The General Manager has approved, with certain amendments, the requirements for FY 1954. All possible methods of filling vacancies from within the Company are being used. The drafting assistance contract with Frank Mayer Engineering Company was signed for the services of nine designers and six draftsmen, and all men are on the job.

Following is a summary of personnel data for the Project Section covering May, 1953.

	May 1, 1953	May 31, 1953	Net Change
Employees on Payroll	514*	526	+12
Technical Graduates-Rotational	7	12	+ 5

The end-of-month status involved these changes:

	Project Sectio.. Personnel	Tech. Grad. - Rotational
Payroll Additions	10	
Payroll Removals	5	
Transfers into Section	9	
Transfers from Section	2	
Transfers within Section	7	

*Increased by one over April total through transfers which were effective April 1, 1953.

B. SCOPE OF ACTIVITIES

At the end of the month, completion status of major projects was as follows: CA-431-A, 100-C Waterworks, 99.8%; CA-431-B, 100-C Reactor, 99.8%; CG-438, Ball Third Safety System, overall, 99%; CG-483, Downcomer Repairs, overall, 99%; CG-496, Recuplex, 1%; CA-506, Repairs to 100 Areas Retention Basins, overall 99%; CA-512, 100-K Area Facilities - Water Plants, KW, 17%; 10%, Reactor Buildings, 105-KW, 8.1%; 105-KE, 5.1%; CA-513 - Part "A", Purex, and Part "B", UO_3 Expansion, temporary construction begun; Part "C", Purex Prototype, 95.3%; CA-514, 300 Area Expansion, overall, 1%.

[redacted]

1203938

DECLASSIFIED

C. MATERIAL PROCUREMENT

Settlement of the machinist strike in the Seattle area greatly increased the need for inspection of critical materials for the 100-K Area. There has been some delay in obtaining sufficient material for fabrication of crates for the 100-K Area, and other procurement for the Expansion Program appears to be slow. The purchase order for the 2 MEV accelerators for CA-489, Positive Ion Accelerator, was temporarily suspended until a mutually acceptable method of payment could be negotiated with the A.E.C. Of the 334 requisitions required for CA-513-A, Purex Facility, 51 have been received from the architect-engineer, and 30 have been approved. All major items for CA-513-B, UO_3 Expansion, have been requisitioned. An order has been placed for fabrication of Recuplex vessels, and the agitator order is out for bids.

D. CRAFT LABOR

The J. A. Jones Construction Company was selected as the fixed fee contractor for Minor Construction. Subcontractors have been selected, as follows: Urban Engineering, Pacific Electric, and V. S. Jenkins. The unfair labor practice charge filed by seven millwrights against Kaiser Engineers was dismissed by N.L.R.B. The special panel of the Federal Mediation and Conciliation Service recommended a settlement of the machinist-millwright dispute. The recommendation was generally accepted by the crafts, but a new phase of dispute caused the second work stoppage of the month, the result of which was a walkout by millwrights. A threat of strike by teamsters, in sympathy with a transit-mix driver who was discharged for negligence, was suppressed by the local union administration. Retroactive wage increases were approved for carpenter, ironworker, and millwright crafts. Carpenters and millwrights also gained a travel allowance for certain areas of outside-the-barricade work.

E. SAFETY AND SECURITY

There were eight regular meetings for discussions of safety, security, and health topics; and they were attended by about 400 personnel. Seven additional meetings were held as follows: special hazards - 2, Monday morning "tool-box" - 4, service contractor foremen - 1. The general effect of these meetings was believed to be very good when the record of the 100 Areas repair program was compared to the potential hazards. A study was made and recommendations issued to prevent the kind of accident which caused the death of a Minor Construction operator on April 27. Varied promotional writing, such as bulletins and drawings, and inspections were continued by field supervisory groups.

F. HIGHLIGHTS OF UNIT ACTIVITIES

Inspection, Drafting, and Estimating Sub-Section: Inspection and Materials Unit added seven people to meet partially the demands of an increasing workload. The Unit completed inspection on 28 orders, assigned 327 orders to inspectors, and transmitted 123 requisitions for the Expansion Program. Drafting production was 402 new drawings, 55 charts and graphs, and 256 revisions. The drafting room average was 5.9 man-days per drawing. Six draftsmen and nine designers who were brought in on the drafting assistance contract are doing satisfactory work. The drafting for CA-512-R was calculated at 85.9%

1205939

complete. During May the output of the Reproduction group was 571,018 square feet. This low total resulted from an adjustment by Reproduction to correspond to the working period reported by Engineering Accounting. The Estimating group completed 30 estimates, eleven of which were project proposal estimates. Field Surveys group checked lot line positions as computed by the surveyor of Richland, and also procured preliminary field data for the 300 Area Expansion and the new facilities in 200 East Area.

Minor Projects Sub-Section worked on 66 project items and four informal requests, representing an estimated total of $23,837,900. Completed work consisted of one project and two engineering requests. No new projects were accepted during the month. Installation of the Ball Third Safety System was completed in 105-H May 9, and repairs to 107-H Retention Basin were completed May 15. These completions allowed substantial reductions of construction contractor personnel as assigned to Minor Construction. Temporary construction on Recuplex, CG-496, began May 1; and construction on various phases of the 300 Area Expansion began during the month. Five project proposals were transmitted to sponsors. One revised project proposal and two revised informal requests were approved by the A&B Committee. Two authorizations were granted by the A.E.C. Important projects now in progress include the Recuplex Installation, 300 Area Expansion Program, and Fuel Element Pilot Plant.

Reactor Projects Sub-Section: The lump-sum contractor for CA-406, Mechanical Development Building, Phase II, is progressing favorably, though he probably cannot finish on schedule.

For CA-512, 100-K Area Facilities, work continued on concrete placement for the water areas. The 181 Building walls were placed to elevation 408'. The first sections of the 60" water lines were being laid. Building 105-KW walls and elevator shaft are to elevation plus 66'. Construction has begun in the transfer and storage area. In Building 105-KE the second pour on the Process Unit was made May 20. Slabs are complete at 0'0" elevation, and a portion of the walls has reached elevation plus 16'. Work continued on movement of shop equipment from 101 Building to 2101-E. Of the approximately 100 pieces of shop equipment, 26 have been accepted. The work is about 30 days behind schedule, and the jurisdictional disputes continue.

Separations Projects Sub-Section continued work toward the June closeout of CA-187-D, Redox Production, at a maximum cost of $40,051,000. Project CA-187-D-II, based on Directive HW-300, was opened with authorized expenditures of $211,000. For Purex Facility, CA-513-A, overall design was 40.4% complete; temporary construction in 200-E was 50% complete; and excavation for 202-A Building was about 50% complete, 160,000 yards having been excavated to date. Design for the "B" part, UO_3 Expansion, was 83% complete. All major procurement items for Part "B" have been requisitioned, and temporary construction began on May 19. Construction of Part "C", Purex Prototype, was 95.3% complete. For CA-535, Redox Capacity Increase Phase II, overall design was 28% complete. Overall design for CA-539, Redox Tank Farm, 241-SX, was 85% complete. All design drawings required by a unit price contractor for this tank farm have been completed and approved.

DECLASSIFIED

Project Control Unit continued its routine functions on budgets, unitization, reports, and administration. An analysis of reports issued by the Project Section was begun. The revised personnel requirements for Project Section have been approved in general by the General Manager. The History group issued four histories.

G. MONTHLY REPORT OF INVENTIONS AND DISCOVERIES

All persons in the Project Section engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge, no inventions or discoveries were made in the course of their work during the period covered by this report, except as listed below. Such persons further advise that notebooks and records, if any, kept in the course of their work, have been examined for possible inventions and discoveries.

NONE

J. S. McMahon, Manager - Projects

May 31, 1953

II. STATISTICAL AND GENERAL

A. SIGNIFICANT ASSIGNMENTS

1. Initial Reporting

NONE

2. Final Reporting

CG-547 (ER-2727) - 235 Building Laboratory Revisions

With design remaining at 20% complete, the using department requested cancellation. The work order has been closed out.

ERA-730 - Solvent Storage Building Rescoping

The required work has been completed, and the revised project proposal for CA-441, Solvent Building, was submitted to the A&B Sub-Committee for its May meeting. The work order is being closed out.

ER-2740 - Final Inspection Facilities, Building 234-5

The requested work was included in CG-551, a project for various improvements in the 234-5 Building.

[redacted]

The following work orders were completed during the month: CC-5285, Mock-Up Cells, 300 Area; Exploration and Minor Repairs to Effluent Sewer Box-105-B; and Vent Line 105-D Effluent Sewer.

3. Current Projects

CA-192 - Remodeling Building 108-F for Biology Laboratory

Design progressed 2% to completion; construction for the total project progressed 1% to a total of 89%. Construction on Parts III and IV progressed 8% to a total of 9%. Design for Room 205 ventilation was complete; lump sum work on the train shed conversion was proceeding on schedule.

The order for the X-Ray machine has been delayed pending further justification for the G.E. Maxitron; however, the gathering of information is almost complete.

CA-431-A - New Reactor - 100-C Plant (Waterworks)

Completion status remained at design 100%, construction 99.8%. There has been no action from A.E.C. on the estimate of cost to complete remaining work which was submitted in March, 1953.

CA-431-B - New Reactor - 100-C Plant (Reactor)

Completion status remained at design 100%, construction 99.8%.

CA-431-C - Metal Examination Facility 105-C

Completion status remained at design 14%, construction 0%; and additional authorization of $28,410 is being prepared for the General Engineering Laboratory to procure four additional slug dollies. The dollies are to be fabricated by an outside vendor. Two representatives of the General Engineering Laboratory visited Richland during the month to discuss this project. The slug measurer prototype is being prepared for acceptance testing during late June, 1953, and modifications of the prototype slug dolly are expected to be completed about the same time. The General Engineering Laboratory has been asked for a quotation, as of June 1, 1953, for engineering and design work only for a slug cleaner, cartridge loader, and a slug transfer mechanism for the surface camera manipulator.

The Design Section is preparing a design schedule on the basis of assigning one man to this project on June 1, another man July 1, a third man August 1, and four men from September 1 through completion. A rough draft copy of the design criteria for this project is being circulated for comments.

DECLASSIFIED

1203942

DECLASSIFIED

CG-438 - Ball Third Safety System

Design had been completed previously; construction progressed 4% to an overall total of 99%. Installation of the Ball Third Safety System in 105-H Area was completed May 9, 1953. The modified solenoids were installed in H Area, and they are to be replaced in the other areas when scheduled shutdowns permit.

Work orders totaling $7,529 have been issued to the Maintenance Sub-Section to complete exceptions to the installation in 105-B, D, and F Areas. A work order for $37,025 has been issued to start work on the F Area rod and hopper rework scheduled to begin June 8, 1953. The total cost of the rework in this area has been estimated as $53,294.

A revised project proposal is being prepared to request additional funds and time for all exceptions and improvements needed. The total required appears to be about $250,000, which includes $90,000 for one spare change of boron balls. It is believed that the improvements can be completed by January 1, 1954.

CG-482 - Pile and Pile Water Plant Improvements

Design had been completed previously, construction progressed 3% to a total of 98%. The thermocouple replacement work in the 100-H Area has been accepted with exceptions totaling about 150 man-hours of work. The exceptions are to be performed by Instrument personnel who are now engaged on higher priority work; so the completion of this work is being delayed for about two months.

CG-483 - Downcomer Repairs in 100-B, D, DR and H and Replacement in 100-F

Completion status remained at design 100%, construction 99%. The sheetmetal duct for 100-F Area is to be installed during the June shutdown for thermocouple installation. With the exception of "as-builts" and closeout, all other phases of this project have been completed. A Stop Charge Notice has been issued to Minor Construction.

CG-506 - Repairs to the 107-B, D, F and DR Retention Basins

Design had been completed previously; construction progressed 8% to a total of 99%. Repairs in the 107-H basin were completed on May 14, except for clean-up of outside radiation zones and removal of tools and equipment. Materials used in 107-H basin were: Thiokol sealant 2,085 gallons, grout 323,339 gallons, cement 18,500 bags.

The east side of 107-F basin is to be inspected on June 1, 1953. It can then be determined if any work should be undertaken during the shutdown of June 8.

1203943

CA-512 - 100-K Area Facilities

100-KW and 100-KE Water Plants

The overall design of the Water Plants progressed 7% to a total of 80%. Construction progress was as follows: KW progressed 3.7% to a total of 17%; KE progressed 2.4% to a total of 10%. The total excavation in KW Water Area was 636,600 yards (revision from the April 1953 report in which the excavation was erroneously reported by the construction contractor as 832,593 yards). Excavation in KE Water Area was 457,600 yards. Total concrete placed in the KW Water Area was 43,200 yards, and in the KE Water Area 19,400 yards. The placing of concrete on various phases of the Water Plants consisted of the following:

181-KW and KE Building walls completed to elevation 408 feet.

183 KW wall sections, filter walls, column lines, and Wheeler bottom support columns.

190-KW Building Pump well and tunnel wall sections.

165-KW tunnel walls and walls of oil storage tanks.

For the cutside lines, excavation continued for the box sewer, process sewer, and raw water lines.

Concrete was placed for slabs and walls in the close-tie. The first sections of 60" raw water lines were being laid.

105-KW and 105-KE Buildings

Overall design progressed 6% to a total of 87%. Construction progress was as follows: KW progressed 2.3% to a total of 8.1%; KE progressed 1.9% to a total of 5.1%. The cumulative total concrete placed for 105-KW was 14,700 yards, for KE, 9,400 yards. The corresponding totals of structural steel placed in the buildings are: 105-KW, 1,130 tons; 105-KE, 770 tons. In 105-KW, construction of the transfer and storage area has begun. The supply fans are being installed. Wall elevations and elevator shaft are finished to elevation plus 66 feet.

For 105-KE the second pour on the process unit was made May 20. Concrete for a portion of the walls has been placed to plus 16 feet, and slabs have been completed at 0'0" elevation.

2101 Building, 200-E Area (A.E.C. administered)

Construction progressed 20.1% to a total of 85.4%.

DECLASSIFIED

1203944

DECLASSIFIED

All shop equipment has been moved from the former 101 Building. Of the approximately 100 pieces of shop equipment, 26 have been accepted. The remaining bulk storage material, such as skips and paper, cannot be moved until portions of 2101 are completed to receive them. The equipment moving program is behind about 30 days, and the millwrights are out again on another of the numerous millwright-machinist jurisdictional disputes. Construction of the building is about six weeks behind schedule due to late delivery on various items of material.

Movement of graphite from 101 Building to 2101 has been in progress since May 20. Approximately 1400 tons of graphite have been received from National Carbon Company, which is slightly ahead of schedule on deliveries. These shipments bring the total graphite on hand to about 3,428 tons.

The Tube Shop facilities and modifications are complete and ready for equipment installation which is scheduled to begin June 3. The heliarc welding machines and the radial drill are available on site. Jigs, fixtures, and handling devices are being designed and fabricated on site.

CA-513-A - Purex Facility

The overall design of the Purex Facility was 40.4% complete. The Architect-Engineer portion was estimated as 32% complete. Of the estimated 2,364 drawings required, 563 have been received, and 456 of this number have been approved. Of the 37 specifications required, 12 have been received and 7 approved.

Temporary construction in 200-E was about 50% complete. Excavation for the 202-A Building began May 4, and 160,000 yards, or about half the total have been excavated.

The construction of the 2601-E railroad extension was 89%. The contractor asked for an extension of his contract, and this has been recommended by the A.E.C. Field Unit because the amount of excavation and borrow exceeded the original estimate. About 50% of the ballast for the new track has been placed.

Of the 334 requisitions required for the Purex Facility, 51 have been received from the Architect-Engineer, and 30 have been approved.

CA-513-B - Uranium Oxide Conversion Facility

Design was 83% complete. Temporary construction began May 19, 1953. All major procurement items have been requisitioned.

CA-513-C - Purex Prototype 321 Building

Design had been completed previously. Construction was estimated at 95.3% complete. The insulation of steam lines is being completed. The remaining work consists of the water demineralizer, jet condenser, the installation of rotameters and the water fog system.

1203945

[redacted]

CA-514 - 300 Area Expansion Program - Production Facilities

The overall scoping progressed 4% to a total of 97%; detailed design progressed 15% to a total of 28%; construction progressed to 1% complete.

An authorization of $4,050,000 has been received by the A.E.C. from Washington for the expansion work in this area. A revised project pro-

[redacted]

DECLASSIFIED

All 10" and 12" pipe has been laid, tested, and partially back-filled. A decision has not been made on whether to route the process sewer water directly to the river or through a drainage pond.

J. Operations Change House

Both scoping and detailed design had been completed; construction progressed 8% to a total of 9%. Work has progressed slowly because of difficulty in obtaining personnel clearances.

K. Administration Building, Gate House, and Parking Lot

Scoping progressed 2% to a total of 98%. At the request of the A.E.C., the title of the justification write-up has been changed from Administration Building to Manufacturing Office Building. Preparation was begun on May 4, 1953 of additional justification for this building. The completed rough draft was issued for comment May 13, and the final form was completed May 27. The information has been forwarded to the A&B Committee.

L. Change House Renovations 3707-A and B

Scoping progressed 3% to a total of 99%. The final issue of the design criteria is being prepared.

M. Oil and Paint Storage

Scoping progressed 3% to a total of 99%. The final issue of the design criteria is being prepared.

N. Steam and Water Facilities

Scoping progressed 2% to a total of 96%. Final issue of the design criteria on the water line is being prepared.

P. Hutment Removal

With scoping at 75%; no further work has been done.

Q. Fire Alarm System

With scoping complete, no further work has been done.

R. Telephone and Security Alarms

With scoping complete, no further work has been done.

B. OTHER ASSIGNMENTS

CG-187-D - Redox Production Plant

This project is to be closed out during June at a maximum cost of $40,051,000.

1203947

A Work Authority based on Directive, HW-300, opens project CA-187-D-II and authorizes expenditures of $211,000. Design is to begin at once.

CA-406 - Part II, Mechanical Development Building

Design had been completed previously; construction progressed 15% to a total of 75%. The general contractor has been granted a seven-day contract completion extension, both because of picket lines established by Kaiser employees during April, 1953, and also because of labor difficulties with the sheetmetal subcontractor. The estimated ready-for-use date is about September 15, 1953.

CA-434 - New Bio-Assay Laboratory

Design by the Architect-Engineer progressed 60% to a total of 80%. In order to permit construction to begin before July 1, 1953, the A.E.C. is expected to let a separate contract for the erection of the building and installation of laboratory equipment. The mechanical and electrical construction will be let on a separate contract at a later date. The Architect-Engineer drawings and specifications on the initial phase of the work have been received from the A.E.C. for comment.

CA-441 - Solvent Building

Design completion status remained at 25%. The revised project proposal was transmitted to the A&B Sub-Committee for the May 25 meeting.

CG-447 - Portable Meteorological Mast

Completion status remained at design 100%, construction 99%. Formal inspection and acceptance were held May 1, 1953, and some minor exceptions are being completed. The using department has not yet signed the acceptance papers. Since it is awaiting a proposal from Hastings Instrument Company to develop a "component meter", some extension of time is needed to complete the exceptions.

CA-455 - Replace Two Elevated Water Tanks in 200-E Area

Completion status remained at design 95%, construction 0%. Following comments by interested General Electric personnel, the contractor's drawings were returned to A.E.C.

CG-477 - Building 284-W - Fifth Boiler Addition

Design had been completed previously; construction progressed 1% to a total of 99%. The contractor completed his contract on schedule May 25, 1953 with one exception. Some minor miscellaneous start-up items will be covered by work orders before the project physical completion date of August 1, 1953.

DECLASSIFIED

1203948

DECLASSIFIED

CA-489 - Neutron Monitoring Calibration Facilities

Design progressed 15% to a total of 80%; construction has not begun.

The detailed building design is progressing as scheduled. The processing of the purchase order for the 2 MEV accelerator was interrupted by the A.E.C. because the method of payment requested by the vendor was contrary to existing Government regulations. Since the method of payment has been agreed upon, the machine order should be placed soon.

CG-495 - (ER-E-483) Outlet Tube Temperature Monitoring Thermocouples

Design had been completed previously; construction progressed 5% to a total of 80%. Preliminary work for this installation has been started in the 100-F Area. Based on work performed to date, Revision #2 of the project proposal has been re-estimated at $387,000. The project proposal is being re-submitted by the Manufacturing Department.

CG-496 - Recuplex Installation, 234-5 Building

Design progressed 6% to a total of 81%; construction began and progressed to 1%. The A.E.C. is being requested to concur in postponement of the submittal of the revised project proposal until September, 1953.

Design drawings are being completed and approved rapidly. The erection of the greater part of the temporary construction is complete, and the removal of contaminated recovery equipment has begun. An order has been placed for fabrication of the vessels. The most important item out for bids is the agitator.

CA-497 - New Substation Fences and Grounding of Existing Fences

Design had been completed previously; construction progressed 38% to a total of 91%. The fencing subcontractor completed erection of new fences on May 11, 1953. The prime contractor is proceeding with the grounding of new and existing steel fences. The scheduledcompletion date is June 13, 1953.

CG-511 - Completion of Minor Construction Fabricating Shops

Design progressed 10% to a total of 40%; construction progressed 5% to a total of 10%. An additional $12,500 has been released to the field to cover carpentry work and part of the electrical work. Every effort is being made to complete design sufficient for field use by June 15, 1953.

CA-516 - Gable Butte Railroad

Completion status remained at design 50%, construction 0%. The rough draft of the project proposal has been completed and is being revised. The present work scope includes re-alignment of 2,000 feet of track and the relaying of 2,826 feet of track. All work is to be performed on a lump sum contract basis at an estimated cost of $105,000.

1203949

[redacted]

CA-517 - Fire Protection Buildings, 272-E and W

Completion status remained at design 30%, construction 0%. A new project proposal estimate has been made, and the rough draft of the project proposal is being completed. The scope has been extended to include asbestos shakes on 272-WB. Submittal of the project proposal to the A&B Sub-Committee is scheduled for June.

CG-519 - Replacement of 100-D Reactor Effluent Line

Design progressed 1% to a total of 98%; construction remained at 22%. Excavation for installation of the 60" pipe is scheduled to begin June 1, 1953. Electrical and instrument drawings are being prepared. A control estimate has been received which predicts a total project cost of $216,475 as compared to the authorized funds of $219,000.

CG-520 - (ER A-1182) P-13 Pressure Assembly Removal

Design progressed 5% to a total of 10%. The design work consists mainly of shielding and mock-up. The Technical Section is reviewing the quantity of shielding required.

CA-525 - Permanent Auxiliary Combined Civil Defense and Plant Disaster Control Center

Completion status remained at design 100%, construction 0%. The invitations to bid have been sent out by the A.E.C. The lump sum bid opening is scheduled for June 15, 1953.

CA-527 - (ER-2718) Fire Protection - 200East and West Spare Parts Warehouse

Design had been completed previously; construction by plant forces was 99% complete. Bids for the lump sum portion of the job were all greater than the fair cost estimate of $6,240. The low bidder at $7,250 is being awarded the job.

CA-529 - Personnel Meter Gatehouse Facility Improvements

Completion status remained at design 100%, construction 0%. Drawings and specifications have been submitted to the A.E.C. for preparation of the bid assembly; however, the project may be delayed pending further justification.

CG-530 - (ERA-3096) 314 Building Revision for Canning Development

Design had been completed previously; construction progressed 8% to a total of 98%. The using department has requested that the temporary curtain be moved to column line 6. This is the second move of the curtain as space became available. Funds are available for this work, but further action must await receipt of the directive extending the completion date from May 1 to June 15, 1953.

DECLASSIFIED

DECLASSIFIED

CA-533 - (ERE-479) Hanford Works Official Telephone Exchange

Completion status remained at scoping 80%, design 12%, construction 0%. The bid opening date for the equipment has been set for June 23, 1953. A study is being made of the possibility of incorporating the Hanford Atomic Products Operation Exchange into that part of the 702 Building now used for office space plus the addition of an equipment room.

CA-535 - Redox Capacity Increase, Phase II

Overall design is estimated to be 28% complete. The Architect-Engineer portion was 20% complete, and the General Electric portion was 35% complete. A requisition for purchase of columns is being prepared.

CG-536 - (ERA-686) Painting High Tanks - 105-B and 105-F

Design progressed 25% to completion; construction began and progressed to 11% complete. Painting began as scheduled on the east tank on the 105-F Area. This work has been accelerated by the use of additional spider staging which has been received.

CG-538 - (ER-2734) Install Underground Waste Line Between "S" Area and "U" Area 200-W

Design completion percentage was revised downward to 78% because of design changes. Construction began and progressed to 5% complete. The construction work consisted of excavation at the 241-U end of the line plus the pouring of cover slabs and prefabrication of reinforcing steel. After considerable discussion with the Radiological Sciences Department, it was decided that the type encasement originally proposed is most satisfactory; so work is continuing on the planned basis.

CA-539 - Additional Waste Storage for Redox

All the design drawings required by a unit price contractor for the tank farm have been completed and approved. Overall design was 85% complete and on schedule. Minor Construction is scheduled to begin work in June.

CA-542 - (ERA-733) Asbestos Shakes - 100-B, D, and F Buildings

Completion status remained at design 50%, construction 0%. Project proposal has been rejected by A.E.C. because of excessive time required for justification. The proposal is being reviewed with the using department to see whether it wishes to submit the proposal to paint the buildings.

CA-543 - (ER-2733) Replace Sanitary Tile Field 200 West Administration Area

Design completion was revised downward to 30% because of a change in scope. The size of the Administration Area field has been reduced, and the using department has requested that the job scope be extended to add the installation of a new tile field at the 200-U Area. The sketches of the proposed tile field are being revised, and the revised proposal is being prepared.

2-8-95

CG-545 (ERA-724) Soil Science Laboratory Facilities

Design progressed 8% to a total of 30%. A revised project proposal is being prepared to include the laboratory work only, as authorized by the A.E.C. Work Authority.

CA-546 (ER-3099) Fuel Element Pilot Plant

Scoping progressed 6% to a total of 98%. Approvals for the final design criteria were obtained by May 25, and the criteria were prepared by the end of the month.

CG-549 (ER-2731) Activate Task I, RMA Line - Building 234-5

Completion status remained at design 15%, construction 0%. The Directive was received early in May, and preliminary design was begun. Demolition and site work was begun on May 29, 1953.

CG-550 (ERA-746) Reactivation of P-10 Facilities

Design was revised downward to 20% because of a great increase in scope. Construction began and progressed to 8%. A revision to the initial project proposal of $275,000 has been prepared and is being reviewed. The increased scope was due mainly to requirements for additional health hazard precautions and additional "J" slug handling equipment. The revised project estimate is $445,000.

IR-116 (015) Combined Civil Defense and Plant Disaster Control Center

Design progressed 30% to a total of 80%. The project proposal is being routed for signatures. The total project cost for conversion of an existing automotive trailer, purchase of emergency equipment, and work at the Prosser barricade headquarters is estimated at $40,000.

IR-133 - Water Quality Laboratory, 108-B Building

Design had been completed previously; construction progressed 3% to 98%. An extension of time has been requested from the A.E.C. because a shipment of duct work required to complete the ventilation system has been delayed until early June. Work orders for performance of the ventilation and electrical modifications have been issued; however, work will not be started until the time extension is received.

****

The following studies and Engineering Requests, involving preparatory work and scoping of future projects, were active during the month:

ERA-661 - Central Distribution Headquarters

Design completion status remained at 27%. The rough draft has been completed of a project proposal to convert the existing 212-R Building into an Electrical Distribution Headquarters at a total project cost of $185,000. Formal submittal

DECLASSIFIED

is being delayed until similar facilities at other sites can be studied.

ERA-725 - Particle Problem Animal Exposure Equipment

Design completion status remained at 5%. Further work was delayed because of incomplete scope data.

ERA-727 - 313 Building Roof Repair or Replacement

Design completion status remained at 50%. Further work was suspended so that repairs may be coordinated with the new 313 Building addition in 1954.

ERA-735 - Graphite Hot Shop and Storage Building

Design progressed 5% to a total of 15%. The project proposal is being prepared for submittal to the A&B Sub-Committee in June.

ERA-736 - Transportation Garage and Facilities - 2713-E

Design completion status remained at 10%. This project proposal is still awaiting final decision on the Central Distribution Headquarters.

ERA-741 - Renovation of 3722-A, 3702, and 3703 Buildings

Design completion status remained at 50%. The using department is considering the painting of such buildings rather than applying asbestos shakes.

ERA-742 - Remodeling First Aid Buildings 100-B, D and F

Design completion status remained at 1%. Further work was suspended because of higher priority work.

ERA-744 - Installation of Steam Meters, 100-B, D, F, and H

Design completion status remained at 5%. The final draft of this project proposal, with an estimated cost of $37,000, is awaiting further review of justification.

ERA-747 - Hot Semiworks Conversion

Design progressed 5% to a total of 10%. Since Project CA-513 has been revised, and Part "D" added, the project proposal is being submitted to the A&B Committee in June 1953. The total estimated cost for this conversion phase is now estimated at $680,000. A request is being made to A.E.C. to authorize $150,000 advanced funds for design and material procurement.

ERA-748 - Laboratory Supply Space, 3706 Building

Design progressed 10% to a total of 15%. A rough draft of the project proposal, at a total estimated cost of $42,000, has been prepared and is being reviewed. Because of expected health hazard conditions, it is contemplated that the work will be performed by Minor Construction forces.

DECLASSIFIED

ERA-1188 - Xenon Generator

Design progressed 1% to a total of 11%. A letter from the Manager, Engineering has authorized $90,000 to install the Xenon Generator Facilities. Plant forces can probably begin shop fabrication of shielded lines in six weeks. A design schedule to match this date is now being determined.

ERA-1195 - Two Phase Flow Facilities

Design progressed 2% to a total of 67%. To improve its contacts with possible fabricators, the Technical Section is using the prints for the electrolytic nickel and the 52S aluminum cosine curve heater tube and the accompanying thermocouple probe. Preparation of the project proposal is waiting for the evaluation of the results of these contacts by the Technical Section.

ERA-1196 - Pile Test Hole Mock-Up

Scoping progressed 25% to a total of 75%. The work as scoped according to original instructions from Pile Technology Unit is estimated at $10,000. A rough draft informal request has been prepared for comment.

ERA-1197 - X Level Cask Handling Facilities, 105-B, C, D, DR, F, and H

The work order has been received, but no work has been performed.

ERA-1198 - Test Hole Facility, 105-B

The work order has been received, but no work has been performed.

ERA-1199 - Heat Transfer Process Tube Mock-Up

The work order has been received, but no work has been performed.

ERA-1200 - Heat Transfer Laboratory

The work order has been received, but no work has been performed.

ERA-1201 - X Level Controlling and Recording Equipment

Design progressed 5% to a total of 15%. Scoping has been completed. It has been estimated that performance of this work in 100-C, F, DR, and H would cost $82,000. The Technical Section believes that the work should be performed in 100-C only, with a resulting cost reduction to about $50,000. No work is planned by plant forces before November 1, 1953.

ERA-1203 - Manipulator for Cave in 108-B Building

Design progressed 4% to a total of 5%. The cost estimate has indicated a total cost of $65,000. Preparation of the project proposal has been delayed because of higher priority work.

1203954

ERA-1204 - Panellit Gauge Testing Facilities

Neither design nor construction has begun. Comments have been received on the rough draft of the project proposal. About $1,000 worth of additional work is being added to provide 46 shut-off valves on the pressure manifolds in 105-B, bringing the total project cost to $166,000. All other areas now have these shut-off valves. Another rough draft of the project proposal is being prepared.

ERA-1205 - New Facility for Lattice Testing

Neither design nor construction has begun. Funds are not available from the Laboratory Area budget; so funds are being requested in the fiscal year 1955 budget. The Technical Section is considering the possibility of performing a reduced scope on Research and Development funds, and the probable use of the 186-D Building to house the Lattice Test Reactor. This use would permit considerable savings; however, the building could be used only for storage while experiments are being performed. All work is awaiting a decision from the Technical Section regarding availability of funds.

ERA-3098 - Cobalt 60 Source for Radiation Studies

Design progressed 10% to a total of 50%. An estimate was made indicating a total construction cost of $15,000. The estimated design cost was about $6,000; so the Technical Section has been asked to review its design estimate so that the total design figure will not exceed $5,000.

ER-2723 - Steel Handling System - 272-W

Design completion status remained at 20%. Since a revised scope has been received from the Manufacturing Department, preparation of the informal request was begun during the month.

ER-2736 - Replacement of Mixing Equipment Task III, RMA Line, 234-5 Building

Design completion status remained at 5%. The Manufacturing Department has requested further delay until a general task III remodeling project is approved.

ER-2737 - Fiscal Year 1954 Water Tank Replacements

Design completion status remained at 15%. Although consideration was given to reducing the scope to three tanks, it has been decided that the project proposal would request the replacement of four tanks at an estimated cost of $150,000. Further work on this project proposal was suspended because of higher priority work.

ER-2739 - Redox Cooling Water Disposal Basin

Design progressed 5% to a total of 15%. A project proposal, revision 5 to CG-187-D, Redox Production Facilities, has been prepared to cover the installation of the basin. The proposal, part 3 of the CG-187-D, is entitled Redox Waste Water Disposal Basin and is being submitted to the A&B Committee in June. The construction work includes both Minor Construction and lump sum contractor phases.

DECLASSIFIED

ER-6020 - Future Records Storage Study

Design completion status remained at 50%. No work was done during May; however, work is being resumed during June, 1953.

ERE-484 - Flexowriter Temperature Recorder, 105-D, DR, and F Areas

Design had been completed previously. The project proposal is being routed for signatures.

CC-5461 through CC-5464 - Thermal Insulation at Building 2101-E, 200-E Area

The old lagging was removed from all ventilating units on the job site. Covering was placed on all outside steam piping which has been installed and tested. The scope is being increased to include all insulation work at this building.

C. RELATED FUNCTIONS

The accelerated inspection program was further expanded by the addition of seven people during the month. Three of the additions were rotational graduates. The need for inspectors increased in the Seattle area following settlement of the machinist strike and the resumption of fabrication of critical materials for 100-K Area. There have been several difficulties in inspection because of waivers granted by construction contractors without informing the Inspection and Materials Unit; however, the problem is being reduced gradually.

Testing of the six Byron-Jackson sludge removal pumps for TBP has continued, and the vendor has written a letter to substantiate his claims for the pumps. On this basis, one pump is being placed in an actual operating test.

Inspection for the Expansion program is progressing despite the usual difficulties of procurement. All major items for the UO_3 facility have been requisitioned, and an order has been placed for fabrication of Recuplex vessels. Of the 334 requisitions required for Purex, 51 have been received from the architect-engineer, and 30 have been approved.

The following is a resume of inspection activities during the month:

ITEM	NUMBER
Open requisitions requiring inspection	199
Orders assigned to inspectors	327
New orders received	79
Orders completed	28
Sub-vendor orders assigned to inspectors	27
Total requisitions for Program "X" transmitted	123
Total orders for Program "X" placed	258

At the end of May there had been grand totals of 1159 Program "X" requisitions transmitted and 843 Program "X" orders placed.

DECLASSIFIED

DECLASSIFIED

C. RELATED FUNCTIONS - Continued

Drafting production for the month was 402 new drawings, 55 charts and graphs, and 256 revisions. The drafting room average was 5.9 man-days per drawing. Following signature of the drafting assistance contract, nine designers and six draftsmen were supplied by the Frank Mayer Engineering Company. All men are on the job, performing satisfactory work, and adequately housed in Richland dormitories.

The general progress of drafting work was good, particularly for the 100-K reactors, Recuplex, Redox Tank Farm, UO_3 Expansion, and P-10 Reactivation. Drafting for the 300 Area Expansion is behind schedule because of lack of firm engineering information.

The Reproduction group changed its reporting period to coincide with that used by Engineering Accounting. Reproduction output for the abbreviated month of 18 working days was 571,018 square feet. Total overtime worked was 224 hours. The larger orders processed during May were 22,135 prints for CA-512-R, 5,797 prints for CA-512-W, and 3,428 prints for CA-513.

The Estimating group completed thirty estimates during the month. The completed estimates comprised the following: project proposal - 11, comparative - 5, fair cost - 2, high spot - 3, scope - 6, and miscellaneous - 3.

The Field Surveys group continued the checking of lot line positions as computed by the surveyor of Richland. This group also procured preliminary field data for 300 Area Expansion and 200 East Area New Facilities. One man has been assigned to assist Inspection Unit personnel.

The Project Control Unit continued its routine functions on budgets, unitization, reports, and general administration. The Control group issued unitization reports on CG-402, CG-424, CA-430, and CG-475. The History group published four histories, bringing the cumulative number to 94. An analysis of reports issued by the Project Section was begun.

D. CRAFT LABOR

The new fixed-fee contractor for supplying construction labor to Minor Construction is the J. A. Jones Construction Company, Minor Construction Division. This contractor prepared for the changeover June 1, 1953 with minimum loss or change of existing personnel. Subcontractors for electrical, mechanical, and insulation work are respectively Pacific Electric Company, Fred Urban Engineering Corporation, and V. S. Jenkins Company. Mr. L. E. McReynolds is remaining as the non-reimbursable contractor representative.

The unfair labor practice charge which was filed against Kaiser Engineers by the local millwrights was dismissed by the National Labor Relations Board. The charge had been filed on behalf of seven millwrights who had been laid off after filling in during a machinist strike and who alleged interference, restraint, and coercion.

1203957

D. CRAFT LABOR - Continued

Voluntary termination of construction contractor (Kaiser Engineers and associated contractors) personnel was 4.8%, slightly higher than the preceding months.

The special panel appointed by Federal Mediation and Conciliation Service recommended on May 11 a settlement for operations at Buildings 101 and 2101 at Hanford by Kaiser Engineers. The recommended settlement was generally accepted by the crafts, but is not expected to improve the general dispute.

DECLASSIFIED

[redacted]

HW-28267

June 10, 1953

MONTHLY REPORT

FUEL TECHNOLOGY SUB-SECTION

MAY, 1953

[redacted]

1203959

VISITORS AND BUSINESS TRIPS

Visitor	Date	Address	Purpose
J. L. Matrone C. W. George G. H. Hupman	5-12/15-53	General Engineering Laboratory	Consultation on Fuel Element Development Program
D. W. White H. T. Sumsion	5-18/20-53	Knolls Atomic Power Laboratory	Consultation on Fuel Element Development Program

Name	Date	Place Visited	Purpose
R. S. Dalrymple	5-20/22-53	Los Alamos Scientific Laboratory	Attend Corrosion Conference
H. R. Gardner	5-18/31-53	Feed Material Production Center	To observe Processing of Uranium
W. T. Kattner	5-10/18-53	Mallinckrodt Chemical Works	To Discuss and Observe Uranium Quality and Fabrication
H. L. Mars	5-4/8-53	Knolls Atomic Power Laboratory	Consultation on Fuel Element and SIR
G. E. McCullough	5-5/6-53	Argonne National Laboratory	Discussion of Fuel Element Development Program
F. B. Quinlan	5-4/5-53	Precision Machine Works	Consulting Conveyor Design
J. W. Riches P. J. Pankaskie	5-18/19-53	Ames Laboratory	Consultations on Uranium Metallurgy
	5-20/21-53	Battelle Memorial Institute	Consultations on Uranium Metallurgy
	5-22-53	Sylvania Electric Products Co.	Consultations on Uranium Metallurgy
	5-25-53	Bridgeport Brass	Consultations on Uranium Metallurgy
	5-26-53	Massachusetts Inst. of Technology	Consultations on Uranium Metallurgy

1203960 DECLASSIFIED

DECLASSIFIED

VISITORS AND BUSINESS TRIPS

Name	Date	Place Visited	Purpose
J. W. Riches P. J. Pankaskie	5-27/28-53	Knolls Atomic Power Laboratory	Consultations on Uranium Metallurgy
E. C. Wood	5-5/6-53	Argonne National Laboratory	Discussion of Fuel Element Development Program
	5-5/6-53	Battelle Memorial Institute	Discussion of Fuel Element Development Program
	5-5/6-53	Fernald	Discussion of Fuel Element Development Program
	5-7/8-53	E. I. du Pont de Nemours & Co., Inc. Savannah River	Discussion of Fuel Element Development Program

1203961

DECLASSIFIED

URANIUM DEVELOPMENT

Fabrication of Uranium

Two hundred powder metal compact slugs have been received from Sylvania Electric Products Company. Extensive pre-irradiation tests will be run on these pieces in preparation for a large scale irradiation test of this type of metal. The last tube of P.T. 313-105-4-M is scheduled for discharging in June at approximately 625 MWD/T. Preliminary results of grain growth studies of uranium, produced by powder metallurgy from both hydride and uranium powders, indicate that some localized grain growth takes place at temperatures above 610 C.

A test, designed to determine the effects on uranium of operating at high surface temperatures while cooling the center, has been devised. The components for use in this test are being prepared.

Examination of samples of the second M.I.T. alpha extrusion has shown the material to be relatively fine grained (0.020 to 0.033 mm. diameter, as extruded), exhibit appreciable fibering and have a (110) type orientation. Physical property values for this material are slightly lower than those determined for alpha rolled uranium. Work has been started on the casting of hollow and solid uranium billets for shipment to K.A.P.L. for their use in investigating extrusion techniques for uranium.

A zirconium clad uranium billet - made by casting uranium into a 0.015" wall zirconium can - was rolled to determine the effects of rolling on the cladding thickness. At a reduction of 76 per cent the cladding thickness was still quite uniform and about 0.009" thick. "Over-rolling" in an attempt at further reduction caused a large non-uniformity in cladding thickness to occur. At no time during rolling was there any apparent tendency of the zirconium jacket to separate from the uranium.

Uranium Alloys

The first tube of P.T. 313-105-13-M, "Initial Irradiation of 0.4 Atomic Per Cent Cr-U Alloy", is scheduled for discharge on June 12 at a concentration of approximately 145 MWD/T. Two 250 pound billets of uranium plus 0.32 atomic per cent chromium alloy have been sent to Fernald for fabrication.

A master alloy of uranium-10 atomic per cent silicon has been cast. This will be used in casting alloys containing from 0.5 to 5.0 atomic per cent Si alloys for investigation of grain refinement, rolling characteristics and other properties.

Process Tube and Can Metals

Acceptance of twenty 63S-T83 aluminum process tubes, based on the mechanical properties and chemical composition as reported in ALCOA's certified inspection report, has been made. These tubes were received on May 26, 1953. The final yield, after complete 313 inspection of material canned in 63S aluminum cans for use in P.T. 313-105-14-M and P.T. 313-105-17-M was 63.8 per cent. Arrangements are being made to prepare thes pieces for shipment to the areas for charging in June.

1203962

COATINGS & CORROSION

Flow Cup Laboratory

With the exception of the equipment for addition of dichromate and some instrumentation, the installation of the Flow Cup Laboratory is complete. These exceptions are caused by delays in procurement of material, but they will not delay operation of the Flow Cup Laboratory.

Tentative plans for equipment to study the corrosion of metals and alloys at temperatures to 250 - 300 C are being studied.

Physicochemical Studies

The theoretical data to show the dependence of corrosion on potential and pH have been calculated, and a curve has been drawn. This curve will help to evaluate the laboratory observations. Some further studies were made on the relationship between observed and theoretical electromotive force data.

Studies of the thermogalvanic potential are being continued. The results confirm previous observations that the element at higher temperature is anodic, and that the observed potential difference depends greatly on sample preparation.

A preliminary draft for a production test to determine the effects of hot or cold spots on slugs in the pile is being circulated. The data from this test will be useful in making an evaluation of the effects of unbonded areas.

Corrosion Studies

Tests have shown that the graphite lubricant used in canning slugs by the hot press method initiates and accelerates corrosion. The removal of graphite by sodium hydroxide etch and wire brushing is unsatisfactory.

Some coupons were autoclaved in the water autoclave for 65 hours. Many pits containing corrosion product were visible on the samples.

Anodization

One tube of anodized slugs from P.T. 105-515-E was discharged May 2 and examined during this month. These slugs which have been in the pile for approximately three months, including one month of down time, have a very low corrosion rate. Although the anodized coating had been removed from the slugs in the rear half of the tube, the amount of aluminum removed was so low compared to the errors of measurement that it could not be determined with any degree of accuracy. For these reasons, and because it is desirable to compare the in-pile results with laboratory data, it has been requested that the remaining four tubes be discharged during the next five months. It is desirable to obtain the data from operation during the summer months since there is some indication from laboratory experiments that the corrosion in water at higher temperatures may be appreciable.

1203963

DECLASSIFIED

A program to develop a more suitable anodized coating has been initiated. This program will include studies on removal of electrolyte from the anodized film and use of different anodizing baths.

DECLASSIFIED
WITH DELETIONS

[redacted]

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED

DECLASSIFIED
WITH DELETIONS

DECLASSIFIED
WITH DELETIONS

1203966

Fb-R

On metallographic examination, the powder metallurgy compact was found to be porous and the sandwich type piece was not completely welded around the periphery. It is believed that the ceramic in the finely divided form holds promise in the sealed cavity if a satisfactory weld can be obtained, but the sintered aluminum powder-alumina mixture appears doubtful.

Metal Fabrication Laboratory

Activity in all phases of the laboratory continues at a high level. Word has been received from the Farquhar Press Company that the 50-ton high speed drawing press, which has been on order, will be shipped on May 29.

The Fuel Technology Sub-Section has agreed to furnish to the Applied Research Sub-Section 6150 hollow slugs for exponential pile experiments on internally cooled hollow slugs. These slugs will first be pile tested as solid slugs, then returned to 300 Area for drilling out the center section to .820 inches diameter. The slugs will again be pile tested and then the center hole will be enlarged to 1.110 inches. The status of this job is as follows: (1) Metal Preparation has completed the machining of the solid slugs, (2) the slugs are being loaded in the 314 Bldg. into the process tubes and delivered to the pile area, and (3) Metal Preparation is conducting experiments to find the most practical method of drilling the slugs with the equipment on hand.

New Facilities

Preliminary work on the Fuel Element Development Pilot Plant has progressed to a point where the final draft on the design criteria has been completed. The Atomic Energy Commission is expected to enter into a contract with an architect-engineering firm in the near future. Fabrication Techniques personnel are presently engaged in writing specifications on equipment to be purchased and installed in this facility.

Project CG-530, Revision of 314 Building for Canning Development is nearing completion. Additional space in this building has been allocated to the Fuel Technology Sub-Section which allows the moving of the canvas curtain prior to June 9.

URANIUM QUALITY

Metal from Uranium Hexafluoride

Preliminary studies of slugs from uranium hexafluoride parent material show important variations in chemical and metallurgical properties. Carbon and nickel, picked up in the reducing column, occasionally are unusually high, and nitrogen is about 20 per cent of that found in production uranium. One as-rolled sample of this metal was only 50 per cent recrystallized. A production test is being written for the evaluation of about 1000 slugs of this material.

Thirty 500 pound ingots were rolled at Fernald in an experiment to evaluate the effect of carbon content, mill speed, and water spray quenching upon the structure of the rolled rods. The rods were shipped to Hanford for thorough study.

1203967 DECLASSIFIED

Regular Fernald Production

About 50,000 slugs canned under provisions of Production Test 313-105-19-M for the evaluation of Fernald rolled uranium slugs have been shipped to the pile areas for irradiation. The yield on the 120,000 slugs which have been canned in this test compares favorably with the yield for Simonds rolled uranium. All the samples of Fernald rolled slugs tested have been completely transformed in triple-dip canning.

Beta Heat Treated Rods

Arrangements were made for the heat treating of 250 tons of uranium rods at Fernald for Production Test 313-105-25-M. Conditions favorable for doing this work were established cooperatively with National Lead personnel, and specifications for beta heat treatment were issued. Heat treating was started at Fernald on May 20 and by May 28, 90 tons of rods had been transformed. The schedule for this work provides that the slugs from the heat treated rods will be machined at Fernald on a campaign basis and that all the slugs will be received at Hanford between June 15 and July 15, 1953.

Beta Transformation of Fernald Slug

A single beta transformation of Fernald rolled uranium slugs produces the dumbell shape previously reported for uranium rolled in other mills. The magnitude and direction of the dimensional changes indicates that the uranium is nearly randomly oriented.

CANNING TECHNIQUES

Compound Layer Investigation - Fractured Bond Study

Thirty six groups of twenty slugs were canned with controlled variations in bronze bath composition, dip bath composition, dip bath temperature, dip bath immersion time, slug agitation rate, and degree of slug oxidation. The slugs are being examined to determine the effect of the changes on the compound layer.

Cap and Can Cleaning

Production Test 313-105-16-M, evaluation of Diversey 514 as an etchant in the aluminum cap and can cleaning process, was started on May 1, and will end on May 30. The Diversey replaces the phosphoric acid etch and results to date indicate it is better than phosphoric acid. It is also easier to handle and store and is cheaper than phosphoric acid.

Induction Type Canning Pot

The Metal Preparation Section has canned approximately 400 eight-inch slugs in the new Ajax Induction Furnace and assisted in inspection and recording of the data on the pieces. Al-Si penetration data indicate that the present temperature and Al-Si composition specifications as set up for resistance type pot furnaces are applicable to this pot except for the location of the thermocouple. The pot can, therefore, be used for regular production.

[redacted]

Tru-Line Slugs

Three hundred additional eight-inch slugs were triple-dip canned this month using Tru-Line interlocking components.

Facing and welding techniques were improved and proper procedures determined. The majority of braze line widths were from 5 to 20 mils and none were observed over 30 mils. The well-type caps were concentrically seated with little visually detectable cap cocking.

Heating and Canning in a Vacuum

In the lead-dip canning process atmospheric gases are excluded from the uranium, during preheating, by the lead bath. An alternate method of preheating the slug, in an environment excluding atmospheric gases, is to perform the preheating operation in a vacuum. This procedure, accomplished with suitable facilities, offers the possibility of assembling the slug, can, and cap in the dry state, with subsequent addition of a metered quantity of molten bonding medium, or possibly with the use of Al-Si clad components, followed by immediate quenching. The number of critical techniques involved in canning might, therefore, be appreciably reduced. The slug quality such as thin compound layers, thin cap and can braze line, perfect seating of slug, might be greatly improved.

Results of preliminary experiments, carried out to test the feasibility of such a procedure, appear sufficiently promising to justify continuing and extending this work.

Improved "C" Type Canning for J Slugs

Two C slug failures and one J slug failure in the piles have been examined and found to be caused, in all probability, by faulty welds which permitted water entry and subsequent corrosion of the unbonded slug. A procedure, suitable for production use, has been developed such that a can closure equivalent to that of the "A" canning process can be obtained and yet reject J slugs can be stripped and recanned.

The can is placed in a conventional sleeve and preheated with the mouth of the can above the Al-Si. A cold J slug and 0.1 inch wafer cap is inserted in the can. After additional preheating the assembly is submerged in the Al-Si and a preheated and pre-wet cap inserted as in the standard "A" process capping. The can is faced as in the "A" process, sized in a die to insure close contact of the can and slug and welded. The resulting assembly has a brazed cap and weld closure equal to that of an Al-Si canned uranium slug. If the slug is rejected because of a marred surface, imperfect weld, etc., it can be stripped and recanned without loss of U235.

TESTING

Al-Si Penetration

In order to stabilize the operation of MIZ-1, Al-Si penetration equipment, a quartz crystal stabilized oscillator was built to replace the Wien bridge oscillator used previously.

1233969

Additional calculations were made, both by graphical and by machine methods, to develop curves for calibrating the equipment. It is believed now that most of the errors in the original machine calculations have been corrected, and an extension of the curves is planned to include wider variations in slug eccentricity.

Non-Seat Test

The Process Sub-Section of the Manufacturing Department evaluated an ultrasonic non-seat test using laboratory equipment. Most of the objections to the equipment's performance can be overcome with improved equipment design. Except for three slugs which were falsely rejected, about 300 slugs were properly classified as non-seats by the equipment.

Transformation Test

Electronic equipment for the transformation test to be used in the proposed lead-dip canning production test was received from the shop ahead of schedule. The equipment has been named Sonotest and is now being checked for proper operation at 5 megacycles. The two conveyors to be used in this test are being built by the Precision Machine Works in Tacoma and will be shipped May 28.

Induction Heater Control

The control unit for the Tocco Induction Heater which was designed to maintain a fixed exit temperature of the uranium rod being heat treated has been installed, adjusted and tested. Starting from a cold rod, the control system limits the initial overshoot to about 30 C, and cycling after the initial overshoot to about $\pm$ 15 C at an exit temperature of 720 C. Some of this cycling is possibly due to variations in emissivity of the rod surface and is inherent in the type of temperature measurement used. Equipment is now in operating condition except for the addition of a trough to prevent trailing ends of rods from overshooting the coil.

Irradiated Material Examination

Cold testing of the apparatus for making ultrasonic inspection of irradiated slugs was completed, and the equipment has been installed in 105-B storage area.

FUEL EXAMINATION

Slug Examination

Several hundred normally discharged production slugs were visually inspected in the discharge chute at 105-C on April 28, 1953. Slight blistering or rippling was evident on 13 eight-inch and 4 four-inch slugs. This amount of blistering and the proportion affected is not abnormal.

C Pile experienced its third, fourth, and fifth ruptures of regular metal this month All three rupture pieces were four-inch slugs. The third failure was a compound end cap type, the other two were longitudinal cleavage type splits. Photographs of these ruptured pieces were taken.

DECLASSIFIED

Five unusual appearing slugs were found during initial inspection of unbonded enriched C slugs discharged from tube 2690-C on April 28, 1953. This tube had been charged on December 1, 1952, and was discharged at about half normal exposure because of high radiation readings at the header. During examination of these five slugs, small bubbles of gas were seen escaping from a "pin-hole" in the side of one slug about two inches from the cap end. This was the first C slug "leaker" discharged from C Pile. Last month two C slug ruptures were discharged from H Pile. The red-brown film that usually covers most slug jackets was not evident on these slugs at the area adjacent to the end cap wafers. This change in film thickness was so abrupt that slightly cocked end caps could be distinguished. C slugs from H Pile that were examined last month exhibited this same film pattern.

Slug Examination Facilities

The following equipment has been installed in the 105-B Examination Facility: mock-up stereoscopic viewer, auxiliary viewer, Chalk River style viewer, and weasel. Installation is continuing on the following: slug air weigher, hydraulically operated viewing manipulator with viewer lighting, and 100-C Facility style underwater lighting. The following equipment, not yet completed, will be installed later: slug cleaner, mechanical slug dimensioner, contour projector slug dimensioner, and improved stereoptical viewer.

The prototype slug dolly, fabricated by the General Engineering Laboratory for use in the 100-C Slug Examination Facility, will be ready for final acceptance the latter part of June, 1953. At this time bids for four additional slug dollies will be requested by GEL.

Tests of the prototype slug measurer, a device to measure slug diameters and lengths, have been delayed due to a faulty casting. Tests of the slug transfer mechanism, however, will be made as planned.

Funds have been authorized for GEL to proceed with scoping design of the slug air weighe for the 100-C Facility. This design will be reviewed the latter part of June, 1953.

The design criteria for the remainder of the project equipment not being designed by GEL is being issued for comment.

INVENTIONS

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Signed: G. E. McCullough

G. E. McCullough
MANAGER, FUEL TECHNOLOGY

GEMcC:acj

1203971

MEDICAL DEPARTMENT

MAY 1953

Personnel Changes
The roll increased from 252 to 254.

Visits
Dr. Sachs attended a meeting of health officers in Seattle to plan a Mental Health Institute.
Miss J. Anderson, Field Advisor of University of Washington School of Nursing, visited the Public Health Section to discuss the student nurse field training program.

Employee Relations
Employee attendance at 31 meetings was 290.

Industrial Medicine
1065 medical examinations and 4660 dispensary treatments represented little change from the previous month.
Three sub-major injuries by General Electric employees were treated while no major injuries were sustained. No contractor major or sub-major injuries were treated.
Sickness absenteeism was 1.50% as compared to 1.67% for April. Total absenteeism was 2.16% as compared to 2.23% for April.
Careful consideration is being given to the problem of noise in the 100 Area pump rooms and in some 200 Area fan rooms. Statistical analysis of hearing tests is in process to try to determine the extent of the problem. Consideration is being given to decreasing noise in continuous work areas by means of better sound insulation for work booths and providing sound dampening devices to individuals required to enter noisy areas for shorter periods of time.
The physical examination schedule has been changed to allow for a complete examination with laboratory work each second year, with a laboratory examination only on alternate years unless a complete appraisal is indicated due to high absentee rate, sickness, personnel problem which would indicate a need for health counselling.

Kadlec Hospital
The average daily census was 82.8 as compared to 101.7 for April. While this is the lowest census for the year it still represents an occupancy percentage of 81.5 for the mixed services.
A survey of hospitals of comparable size to Kadlec in Washington and Oregon, was completed. Data on charges, salaries, operating methods and costs was obtained. This information will be used in recommending rate changes and in making changes preparatory to community operation of the hospital.
Hospital Open House was attended by some five hundred interested Richland citizens.

Public Health and Welfare
The level of communicable diseases remained about the same. However, there was a significant rise in scarlet fever.
Work was completed with four children with behavior problems. About 156 hours of counselling time was given to these children and their parents, resulting in improved adjustment to school, community and home life. 45 cases involving children are currently under care.

1203972

MEDICAL DEPARTMENT

MAY 1953

Public Health and Welfare (Continued)
Two cases of marital difficulties were brought to successful conclusions after a series of 48 conferences. There are currently 16 families receiving marital counselling.

Costs - April
Medical Department costs before assessments to other departments were as follows:

	March	April	Apr.Budget
Industrial Medicine (Oper.)	$39,435	$40,073	$41,090
Public Health (Oper.)	11,273	12,475	14,837
Kadlec Hospital (Net)	8,150	9,700	27,412
Hospital Expense Credits	6,751	4,789	3,326
Sub-total-Medical Department (Oper.)	65,609	67,037	86,665
Construction Medical (Industrial and Public Health)	3,650	2,702	12,597
Total-Operations and Construction	$69,259	$69,739	$99,262

The net cost of operating the Medical Department before charges were assessed to other departments for services rendered was $69,739, an increase of $480. Hospital revenue remained high with a slight increase in expenses

1203973

MEDICAL DEPARTMENT

MAY 1953

Industrial Medical Section

Medical examinations completed in May were 882 compared to 876 in April. General Electric employees sustained 3 sub-major injuries but no majors, and contractor employees sustained no major or sub-major injuries during the month.

Dr. Riordan was released from construction medical services. Two clerical employees are still engaged in preparing contractor medical records for storage.

One information meeting was held during the month for industrial physicians.

New frequency schedules for routine examinations begun last month are working out so that it is possible for physicians to spend more time with employees

[redacted]

Industrial Medical Section (Continued)

Costs-Operations (Continued)

Actual net costs for fiscal year 1953 to date total $331,156 with a budget of $353,272 or 93.7%.

Costs-Construction

Gross costs in April were $1,741 as compared to $2,676 during March, a decrease of $935 detailed as follows:

	April	March	Increase (Decrease)
Salaries	$1,468	$2,317	$ (849)
Continuity of Service	147	232	(85)
Utilities,Transportation,Maintenance	61	49	12
Supplies and Other	65	78	(13)
Total Gross Costs	$1,741	$2,676	$ (935)

One industrial physician was on the roll during the first half of the month, being transferred to the Industrial Operations program on May 18th. Two medical records employees are still charged to this program and remain until records transcribing is completed.

1203975

MEDICAL DEPARTMENT

MAY 1953

Industrial Medical Section (Continued)	April	May	Year to Date
Physical Examinations			
Operations			
Pre-employment	52	82	346
Rehire	18	25	94
Annual	393	317	1745
Interim	141	192	861
A.E.C.	26	24	147
Re-examination and rechecks	139	121	650
Termination	107	121	563
Sub-total	876	882	4406
Contractors			
Pre-employment	0	0	665
Rehire	10	3	121
Recheck	1	11	192
Termination & Transfer	78	136	728
Interim	0	33	87
Sub-total	89	183	1818
Total Physical Examinations	965	1065	6224
Laboratory Examinations			
Clinical Laboratory			
Government	119	95	670
Pre-employment, Termination, Transfer	2408	2663	14930
Annual	2399	1913	10708
Recheck (Area)	1050	972	5350
First Aid	15	0	35
Clinic	379	489	2265
Hospital	5868	5068	26767
Public Health	19	4	52
Total	12257	11204	60777
X-Ray			
Government	14	19	110
Pre-employment, Termination, Transfer	85	107	1272
Annual	387	462	1947
First Aid	91	89	538
Clinic	222	188	1167
Hospital	437	268	1966
Public Health	2	3	32
Total	1238	1136	7032
Electrocardiographs			
Industrial	42	73	214
Clinic	2	0	15
Hospital	61	57	275
Total	105	130	504

1203976

MEDICAL DEPARTMENT

MAY 1953

Industrial Medical Section (Continued)	April	May	Year to Date
First Aid Treatments			
Operations			
New Occupational Cases	343	352	1803
Occupational Case Retreatments	1251	1197	6329
Non-occupational Treatments	2492	2604	13786
Sub-total	4086	4153	21918
Construction			
New Occupational Cases	121	102	831
Occupational Case Retreatments	370	302	2654
Non-occupational Treatments	131	65	854
Sub-total	622	469	4339
Facility Operators	44	38	210
Total First Aid Treatments	4752	4660	26467
Major Injuries			
General Electric	0	0	4
Contractors	1	0	2
Total	1	0	6
Sub-major Injuries			
General Electric	2	3	8
Contractors	0	0	11
Total	2	3	19
Absenteeism Investigation			
Calls Made	4	5	35
Employee Personal Illness	1	4	29
No. absent due to illness in family	1	0	1
No. not at home when call was made	2	0	4

MEDICAL DEPARTMENT

MAY 1953

Hospital Section

The average daily adult census decreased from 101.7 to 82.8, as compared to 79.4 a year ago. This represents an occupancy percentage of 76, broken down as follows: Mixed Service (Medical, Surgical and Pediatrics) 81.5%; Obstetrical Service 52.9%. The minimum and maximum daily census ranged as follows:

	Minimum	Maximum
Mixed Service	52	90
Obstetrical Service	6	19
Total Adult	59	105

The average daily newborn census decreased from 15.0 to 10.1, as compared to 10.5 a year ago.

Nursing hours per patient per day:

Medical, Surgical, Pediatrics	3.56
Obstetrical	5.05
Newborn	3.58

The ratio of inpatient hospital employees to patients (excluding newborn) for the month of April was 1.66. When newborn infants are included, the ratio is 1.44.

The net expense for the operation of Kadlec Hospital for April was $9,700, as compared to $8,150 for March. Summary is as follows:

Kadlec Hospital net expense $9,700
This is an increase of $1,550 over the month of March. Revenue increased by $4,140, but was more than offset by $1,962 reduction in expense credits and $3,728 increase in expenses. The expense increase resulted primarily from supplies charged during this month which had been ordered previously and from wage adjustments. Laundry costs also increased due to increased laundry usage.

It appears that the high winter and spring patient census has reached its peak for this year and the normal seasonal decline toward a lower summer census has begun.

All of the hospitals included in the survey being conducted by Mr. O. E. Bakko and Mr. C. A. Kremer have been contacted. Summarization and analysis of the data gathered are in process, and it is expected that the rate comparison part of the survey will be completed early in June. Financial, personnel and service information will be subsequently analyzed.

1203978

Hospital Section (Continued)

A very successful Open House was held on May 13 in connection with National Hospital Week celebrations. This year for the first time the three civilian Tri-City hospitals cooperated on joint news releases for items of common interest to all three. Two window displays in the uptown and downtown business districts called attention during the week to hospital activities. As in past years the Kadlec Auxiliary played a very prominent role in the festivities.

Twenty-two meetings with employees were held in the hospital during May with an attendance of 206.

1203979

MEDICAL DEPARTMENT

MAY 1953

Hospital Section (Continued)	April	May	Year to Date
Kadlec Hospital			
Average Daily Adult Census	101.7	82.8	94.3
Medical	29.2	22.8	29.3
Surgical	42.5	36.2	36.0
Pediatrics	13.6	12.8	16.1
Mixed	85.2	71.7	81.4
Obstetrical	16.5	11.1	13.0
Average Daily Newborn Census	15.0	10.1	12.4
Maximum Daily Census:			
Mixed Services	99	90	108
Obstetrical	23	19	23
Total Adult Census	117	105	120
Minimum Daily Census:			
Mixed Services	65	52	50
Obstetrical Service	11	6	6
Total Adult Census	77	59	59
Admissions: Adults	638	577	3148
Discharges: Adults	640	607	3140
Newborn	92	74	383
Patient Days: Adult	3051	2568	14245
Newborn	449	314	1874
Total	3500	2882	16119
Average Length of Stay: Adults	4.8	4.2	4.5
Medical	4.9	4.7	4.5
Surgical	4.9	4.1	4.7
Pediatrics	4.2	3.7	4.3
Mixed	4.8	4.2	4.6
Obstetrical	4.7	4.4	4.4
Newborn	4.9	4.2	4.9
Occupancy Percentage: Adults	93.3	76.0	86.5
Medical	78.9	61.6	79.2
Surgical	132.8	113.1	112.5
Pediatrics	71.6	67.4	84.7
Mixed	96.8	81.5	92.5
Obstetrical	78.6	52.9	61.9
Newborn	57.7	38.8	47.7
(Occupancy Percentage based on 109 adult beds and 26 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	3.56		
Obstetrics	5.05		
Newborn	3.58		
Avg. No. Employees per Patient (excluding newborn)	1.66		
Operations: Major	112	105	510
Minor	108	115	487
E.E.N.T.	68	86	358
Dental	0	1	2

1203980

MEDICAL DEPARTMENT

MAY 1953

Hospital Section (Continued)	April	May	Year to Date
Kadlec Hospital (Continued)			
Births: Live	94	69	381
Still	1	2	7
Deaths	7	5	23
Hospital Net Death Rate	.27%	.15%	.17%
Net Autopsy Rate	57.1	20.0	30.4
Discharged against advice	1	2	3
One Day Cases	154	180	779
Admission Sources:			
Richland	77.9	75.0	77.6
North Richland	8.3	11.1	9.6
Other	13.8	13.9	12.8
Admissions by Employment:			
General Electric	75.4	73.8	74.5
Government	1.9	2.3	2.5
Facility	3.1	3.8	3.6
Contractors	11.7	12.8	11.1
Schools	1.4	2.1	1.9
Military	.2	.3	.7
Others	6.3	4.9	5.7
Hospital Outpatients Treated	410	542	2270
Physical Therapy Treatments			
Clinic	325	358	1523
Hospital	172	158	986
Industrial: Plant	429	324	1335
Personal	15	3	44
Total	941	843	3888
Pharmacy			
No. of Prescriptions Filled	3095	2373	15160
No. of Store Orders Filled	553	518	2709
Patient Meals			
Regulars	4482	3543	20818
Children under 8	436	409	3009
Specials	1745	1503	8149
Lights	4	0	5
Softs	1315	1198	5663
Tonsils	134	163	703
Liquids	275	267	1235
Surgical Liquids	135	106	494
Total	8526	7189	40076
Cafeteria Meals			
Noon	1984	1884	9691
Night	295	315	1431
Total	2279	2199	11122

1203981

MEDICAL DEPARTMENT

MAY 1953

Public Health Section

Actually the communicable disease level remained about the same. The significant feature was the increase in the number of scarlet fever cases which reflected the occurrence of this disease in the State of Washington. The Salmonellosis occurred in one family where a carrier state existed. This family is now under treatment and it is hoped under control so they will not disseminate this disease in the community.

At the meeting held with the Benton-Franklin County Board of Health with regard to the transfer of the Richland public health activities to county function - the resolution was passed by the Benton-Franklin County Commissioners and the Board of Health to the effect that they did not desire this transfer from the county standpoint at this time. All other efforts to explain and interpret the benefits to be derived from this combination met with failure.

An open house was held for members of the Richland Chamber of Commerce. Programs were reviewed for them by various staff members exemplified by talks and displays.

Miss Julia Anderson, Field Advisor of the University of Washington School of Nursing, visited the department in regard to a student nurse receiving field training.

The Health Officer attended a conference in Seattle in regard to planning for a Mental Health Institute to be held at Lake Wilderness, Washington, in June.

A handicapped clinic was held for members of the special room at the Marcus Whitman School by Dr. C. Don Platner, orthopedist.

A hearing clinic for acoustically handicapped children was sponsored by the department to establish diagnosis and make recommendations for hard-of-hearing cases found among the school children.

The interior painting of the public health building was started.

There were two staff meetings held with 33 present, one special meeting held with the staff, two other meetings at which 8 individuals were seen and one individual was seen at a special conference.

Activity devoted to mosquito control consisted of a two-man crew working on spraying and clearing ditches in an attempt to prevent the propogation of adult mosquitoes. Transportation Division is now ditching the West 3000 Area swamp and cleaning the existing ditch to establish proper drainage.

Thirty-one Grade A dairy farms were inspected during the month and found to be in good condition.

All the restaurants and bakeries were inspected plus 3 meat markets and 5 taverns to insure the continuation of sanitary food facilities.

John O'Meara, national restaurant consultant, was employed by the local restaurants to give a 5-day food handlers' training course. This department assisted in promoting the program.

1203982

Public Health Section (Continued)

Dog bites remain a nuisance problem.

Work was completed with four young children who had been displaying behavior problems. Approximately 156 hours of counseling time was given to these children and their parents resulting in improved adjustment to school, community and home life. This small investment saved a sizable expenditure in law enforcement, court hearings, institutional confinement, etc.

In addition to the cases completed, 45 cases involving children are currently under care.

Two cases of marital difficulties were brought to successful conclusion after a series of 48 conferences. In each case an employee would have left his job if the family had broken up. There are currently 16 families receiving marital counseling.

One employee stricken by a handicapping illness was helped to start rehabilitation training so that he will again be a contributing citizen of the community. Ten other individuals are receiving help in achieving emotional or physical rehabilitation.

MEDICAL DEPARTMENT

MAY 1953

Public Health Section (Continued)	April	May	Year to Date
Education			
Pamphlets distributed	10,989	9,990	52,947
News Releases	10	13	65
Staff Meetings	1	1	7
Classes	11	11	52
Attendance	184	127	461
Lectures & Talks	14	18	75
Attendance	691	788	3,172
Films Shown	44	34	127
Attendance	1,516	867	3,898
Community Conferences & Meetings	53	38	236
Radio Broadcasts	0	0	9
Immunizations			
Diphtheria	21	3	81
Diphtheria Booster	10	9	331
Tetanus	26	3	137
Tetanus Booster	7	9	432
Pertussis	5	2	13
Pertussis Booster	0	8	134
Smallpox	7	11	87
Smallpox Revaccination	81	8	770
Tuberculin Test	28	2	50
Immune Globulin	3	2	14
Other	0	50	50
Social Service			
Cases carried over	84	84	414
Cases admitted	13	17	72
Cases closed	13	12	61
Remaining case load	84	89	425
Activities:			
Home Visits	10	5	48
Office Interviews	257	326	1,498
Conferences	53	65	252
Meetings	5	10	36
Sanitation			
Inspections made	128	164	688
Conferences held	28	20	111
Bacteriological Laboratory			
Treated Water Samples	216	216	1,003
Milk Samples (Inc. cream & ice cream)	48	48	200
Other bacteriological tests	672	451	2,674
Total	936	715	3,877

1203984

MEDICAL DEPARTMENT

MAY 1953

Public Health Section (Continued)	April	May	Year to Date
Communicable Diseases			
Chickenpox	33	28	189
Diphtheria	1	0	1
Erysipelas	1	0	1
Food Poisoning	29	0	29
German Measles	4	6	34
Gonorrhea	7	12	44
Impetigo	1	1	6
Influenza (U.R.I.)	0	0	4
Measles	1	4	8
Mumps	39	26	258
Pinkeye	2	0	8
Poliomyelitis	1	0	1
Ringworm	0	1	6
Roseola	0	0	1
Salmonellosis	0	4	4
Scabies	0	0	1
Scarlet Fever	4	17	47
Syphilis	2	1	8
Tuberculosis	0	2	4
Total	125	102	654
Total No. Nursing Field Visits	618	810	3,980
Total No. Nursing Office Visits	76	76	493

1203985

Radiological Sciences Department

RADIOLOGICAL SCIENCES DEPARTMENT

MAY 1953

Summary

Twelve informal radiation incidents, 4 Class I and two Class II incidents were recorded. This is probably a reasonable frequency. Only one incident was potentially injurious to personnel. This concerned major hand exposures (in excess of 100 rep) to personnel loading a reactor.

One of the informal incidents, the so-called "hot rain" or fall-out of atomic bomb debris created widespread public excitement.

In the control activities of the department, significant findings included a continuation of high reactor effluent activity, the observation of significantly contaminated sport fish above the reservation, and substantial emissions of particles, mainly contaminated with ruthenium, from the Redox stack.

In research activities, lambs born to ewes fed only 15 μc I^{131} per day showed thyroid damage. In rat tissues, deuterium was preferentially incorporated with respect to tritium, the reverse of the case for algae. A substantial flow of artesian water was shown to be available in the 300 Area.

Studies leading to further savings in waste disposal practices were continued.

DECLASSIFIED

1203986

DECLASSIFIED

[redacted]

Radiological Sciences Department

RADIOLOGICAL SCIENCES DEPARTMENT

MAY 1953

Organization

The month end force of 369 included 31 supervisors, 103 engineers and scientists, 17 clerical, and 218 other personnel.

Number of Employees on Payroll		
Beginning of month	-	372
End of month	-	369
Net decrease	-	3

General

The number of radiation incidents fell considerably to a level that should probably be acceptable as showing reasonable but not over-conservative management of radiation protection. The exception was one Class II incident that involved indeterminate hand exposure possibly on the order of several hundred rep. Slight modification of the circumstances could have led to radiation injury to personnel.

One of the incidents, officially classed only as "informal" generated considerable excitement in the plant and in neighboring communities. This was the case of the "hot rain" that fell between about 6 a.m. and 7 a.m. on May 26, following the atomic cannon test at the Las Vegas site on May 25.

The rapidity with which radiation monitoring forces, in both Manufacturing and Radiological Sciences Departments detected and guessed the origin of the contamination was striking and praise-worthy. Much cooperative work had to be rapidly organized, especially in the biophysics section, to define the origin, severity and extent of the phenomenon. By the close of the work day, a coherent picture had been derived from radiochemical analysis, decay rate, energy spectrum, particle shape and size, meteorological conditions, activity of rain water, vegetation samples, and the geographical distribution between Yakima, Pendleton, and Lewiston.

1203987

Radiological Sciences Department

General (continued)

Some minor confusion arose in the community as a result of well-intentioned but unauthorized advice from numerous employees to their families. Fall-out of atomic bomb debris is an AEC problem, and responsibility for public releases on the topic is clearly restricted to the Commission. Excellent liaison between the Company and the Commission was maintained at the appropriate staff level.

As determined by the authorized method, the initial gamma exposure rate was only 0.2 mr/hr, which integrates to a maximum exposure of 13 mr in ten weeks. This is only about 0.4% of the permissible exposure in that time. However, it was clear to many trained and semi-trained observers on the site that possible beta ray exposures were quite significant, and would not have been acceptable if long continued. Certainly, it would not be tolerable to the local population to receive an incident 250 times as severe as this, which would still have been "officially" tolerable. Plans are currently being made for prompt and effective guidance in the event of another fall-out of a higher order of magnitude.

Part of the paradox arises from the different nature of the hazard from fission products generated instantaneously in a bomb, and those produced in long-term irradiation in a reactor. Not only are the former subject to more rapid decay, but also the composition includes much less of the more dangerous radioisotopes with respect to intake.

The second general information meeting of the department for the year was held, with spouses of employees, members of management and high school science teachers as guests. Dr. R. E. Zirkle discussed the irradiation of small parts of living cells. Approximately 300 people attended this highly successful meeting. During the same week, Dr. Zirkle gave 3 more advanced talks to the biology personnel.

Vigorous efforts to reduce costs in research and development, especially in biology, brought the estimated expenditures for the fiscal year into better relationship to the budget.

During the period covered by this report, all persons in the Radiological Sciences Department engaged in work which might reasonably be expected to result in inventions, or discoveries, advised that to the best of their knowledge and belief no inventions or discoveries were made in the course of their work except as listed below. Such persons further advised that for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor	Title
None	None

1203488
DECLASSIFIED

DECLASSIFIED

Radiological Sciences Department

RADIOLOGICAL ENGINEERING

It was agreed that it would be permissible to crib all condensate from self-evaporation in the SX Tank Farm. This step is said to lead to savings on the order of 2-1/2 million dollars.

Reconsideration of the RAW from the TBP process indicated that it would not be feasible to crib this waste stream. The over-all situation on release of radioactive wastes to ground was reviewed and documented (HW-28121, 5/20/53).

RADIOLOGICAL RECORDS AND STANDARDS SECTION

1. Radiation Monitoring Services

General Statistics

	April	May	1953 To Date
Special Work Permits	492	514	2,409
Routine and Special Surveys	1,533	1,277	6,263
Air Samples	1,335	1,273	5,818
Skin Contamination Cases	16	3	52

A spill involving about 325 µg of plutonium occurred at the Hot Semi-Works and resulted in spread of contamination to adjacent areas. The contamination was discovered and removed promptly without spread to personnel.

Low level plutonium contamination occurred at the plant laundry following delivery of contaminated rubbers from the 224-T Concentration building. It was necessary to discontinue operations in the laundry for a few hours until the contamination could be removed.

Preliminary work associated with the rehabilitation of the P-10 facilities at the 108-B building was carried out without incident. Contamination was encountered on a variety of equipment.

2. Radiological Standards

Two Class II, four Class I, and twelve informal radiation incidents were investigated. One informal incident reported in March was reclassified as Class I. The two Class II incidents involved overexposure of a General Electric Hanford employee during the Nevada tests, and the overexposure of six Reactor Section employees at the 100-D Area. Three of these latter employees also received hand exposures

1203989

Radiological Sciences Department

Radiological Standards (Continued)

estimated above 100 rep. The Class I incidents included spill of supernatant in the 200-W Area, unmonitored work in a reactor rod room, contamination spread in the laundry (see above), and an incident of a Top Secret nature. One of the informal incidents was an extensive low level contamination fall-out over the area resulting from the Nevada tests.

3. Exposure Records

(a) Personnel Meters, and Records and Photometry

General Statistics	April	May	1953 To Date
Gamma pencils read	239,744	219,280	1,153,882
Potential overexposures	9	10	43
Confirmed overexposures	1	4	5
Slow neutron pencils read	750	976	5,940
Potential overexposures	2	2	6
Confirmed overexposures	0	0	0
Beta-gamma film badges processed	38,338	37,829	191,861
Potential overexposures	25	42	221
Confirmed overexposures	3	4	15
Fast neutron badges processed	843	503	2,547
Potential overexposures	0	0	0
Confirmed overexposures	0	0	0
Lost readings (all causes)	26	26	203

(b) Bioassay

1. Plutonium Analyses

	April	May	1953 To Date
Samples assayed	700	1,006	3,564
Results above detection limit	56	7	77
Resamples assayed	13	42	88
Results above detection limit	9	4	25
Maximum d/m/sample	2.25	0.98	2.25

2. Fission Product Analyses

Samples assayed	692	1,008	3,146
Results above 10 c/m/sample	0	0	1

DECLASSIFIED

1203990

3. Uranium Analyses

Results of 312 samples were as follows:

METAL PREPARATION - 300 AREA

Job Description	End of 4th Day Exposure µg/liter Maximum	Average	Number Samples	End of 2 Days-No Exposure µg/liter Maximum	Average	Number Samples
Canning	11	3	30	8	3	11
Machining	17	7	23	6	4	12
Melt Plant	22	9	26	20	7	22
Material Handling	23	11	30	14	7	25
Testing	27	5	28	5	2	13
305 Building	19	9	4	6	3	3
Coverage	6	3	5	4	2	2
Technical	5	2	6	-	-	-

	Before Job Maximum	Average	Number Samples	After Job Maximum	Average	Number Samples
Car Unloading	18	12	3	3	2	3
Billet Loading	-	-	-	4	2	4

Miscellaneous Samples (µg/liter)

	Maximum	Average	No. Samples
224-U	22	3	62

4. Tritium Analyses

Activity Density (µc/cc x 10^3)

	<2	2-20	>20	Total	1953 to Date
Number of Samples	47	1	0	48	306

(c) Thyroid Checks

All thyroid checks reported were below the warning level.

(d) Hand Score Summary

There were 46,305 alpha and 54,746 beta scores reported. About 0.02% of the alpha and 0.01% of the beta scores were above the warning level. Decontamination of each of the reported cases above the warning level was attempted and successful.

1203991

4. Calibrations	Number of Routine Calibrations		
	April	May	1953 To Date
Fixed Instruments	135	93	611
Portable Instruments	2,524	2,376	10,018
Personnel Meters	12,175	9,356	42,504
Total	14,834	11,825	53,133

BIOPHYSICS SECTION

CONTROL UNIT

Regional Survey

The general findings are summarized in the following table:

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density (μc/cc)
Drinking Water		
Benton City Water Co. Well	alpha	1×10^{-8}
Richland, N.Richland, Benton City Wells	alpha	<0.5 to 1×10^{-8}
100 Areas	beta	<0.5 to 1.5×10^{-7}
Pasco, Kennewick, McNary Dam	beta	<0.5 to 1.5×10^{-7}
Backwash Solids-Pasco Filter Plant	beta	2×10^{-2} μc/gm
Backwash Liquids-Pasco Filter Plant	beta	0.3 to 1.6×10^{-7}
Sand Filter-Pasco Filter Plant	beta	4.6×10^{-5} μc/gm
Anthracite Filter-Pasco Filter Plant	beta	9.6×10^{-5} μc/gm
Other Waters		
300 Area Wells #1,2, 3	alpha	<0.5 to 3.9×10^{-8}
300 Area Well #4	alpha	1.9×10^{-7}
Well #4 measured as uranium	U	1.3×10^{-7}
Miscellaneous wells on the reservation	beta	<0.5 to 1.8×10^{-7}
Columbia River-Hanford Ferry	beta	8.3×10^{-6}
Columbia River-Below reactors	beta	8.3×10^{-6}
Columbia River-Patterson to McNary	beta	2.6×10^{-7}
Columbia River-Shore mud	beta	2.0 to 9.5×10^{-5} μc/gm
Raw Water-Operating areas	beta	<0.5 to 2.9×10^{-7}
Reactor effluent retention basins	beta	3.5 to 5.8×10^{-3}
Reactor effluent retention basins	alpha	$<5 \times 10^{-9}$
I^{131} in farm wastes	I^{131}	3.9×10^{-6}
I^{131} in Columbia River-Hanford	I^{131}	1.4×10^{-7}

1203992

DECLASSIFIED

DECLASSIFIED

[redacted]

Radiological Sciences Department

Regional Survey (Continued)

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density (μc/cc)
Atmospheric Pollution		
Gross alpha emitters	alpha	< 0.4 to 1.4 x 10^{-14}
Gross dose rate-Separations areas	beta-gamma	0.4 to 1.6 mrep/day
Gross dose rate-Residential areas	beta-gamma	0.3 to 0.5 mrep/day
Filterable beta-Separations areas	beta	0.07 to 1.5 x 10^{-11}
I^{131}-Separations areas	I^{131}	0.7 to 5.7 x 10^{-13}
I^{131}-Separations stacks	I^{131}	1.4 curies/day
Active particles-Wash.,Ida.,Ore.,Mont.	--	0.03 to 0.13 ptle/m^3
Active particles-Hanford Operation	--	0.02 to 0.13 ptle/m^3
Tritium (as oxides)-Reactor stacks	T	0.2 curie/day
		μc/gm
Vegetation		
Environs of Separations areas	I^{131}	0.4 to 1.3 x 10^{-5}
Residential areas	I^{131}	< 3 x 10^{-6}
Eastern Washington and Oregon	I^{131}	< 3 x 10^{-6}
Non-volatile beta emitters-Wash.&Ore.	beta	3 x 10^{-5}
Alpha emitters-Separations areas	alpha	0.5 to 1.7 x 10^{-7}
Alpha emitters-300 Area	alpha	5.3 x 10^{-7}

Ruthenium emission from the Redox stack increased during the month from an average of less than 1.6 x 10^{-2} curie/day the previous month to an average of 0.14 curie/day, with a maximum emission of 1.3 curies on one day. This emission appeared to be in the form of small, insoluble particles with a maximum activity of approximately 10^{-4} μc per particle. Concentrations were as great as 100 particles/cubic meter in the air near the plant, and 3 particles/cubic meter at the 200-West gatehouse. *

The presence of unusual amounts of radioactive material on the ground in the Hanford environs on Tuesday, May 26, was traced to fall-out of airborne particulate material from the Nevada atomic test of the previous day. Activity density measurements of non-volatile beta particle emitters in vegetation were as high as 0.06 μc/g, near Dayton, Washington. Highest meter readings were noted near Richland where a reading of 90,000 c/m on an unshielded EGM was noted at ground level. Readings on the order of 20,000-80,000 c/m were noted at Sprague, Ritzville, and Pullman. Highest gamma dosage reading measured with GM instruments was 0.6 mr/hr, with a general average of 0.2 mr/hr.

* These levels were reported after the conventional cut-off date for active particle concentrations in the table above; hence the apparent discrepancy between these entries.

[redacted]

1203993

DECLASSIFIED

Radiological Sciences Department

Analytical Control Laboratory

Routine and special analyses were carried out as follows:

Laboratory	Analyses Completed May	Analyses Completed 1953 To Date
Type Sample		
Vegetation	1111	5403
Water	1788	8861
Solids	379	1609
Air samples	522	1509
Uranium (fluorophotometer)	722	2354
Oil fog (fluorophotometer)	62	302
Special survey samples (RMSS)	36	140
Special survey samples (RMU)	10	453
Phillips Petroleum-Tritium in water samples	0	12
Total	4630	20643
Counting Room		
Beta measurements (recounts included)	5919	29874
Alpha measurements (recounts included)	2618	12616
Control points (alpha and beta)	2390	12315
Decay curve points	5659	22860
Absorption curve points	316	1612
Total	16902	79277

Control Services

A correlational analysis was completed comparing the gross beta activity density measured with a BGO counting instrument and the dosage rate measured with a portable meter on air sample filters installed in the gas effluent sampling line before the sand filter at Redox facility. A study of the relation between measured amounts of I^{131} in precipitation and variables related to the emission and collection of this type of sample was concluded.

Synoptic Meteorology

Forecasts	Number Made	May Percent Reliability
Production	93	83.1
24-hour	62	81.3
Special	59	81.4

1203994

DECLASSIFIED

Radiological Sciences Department

Synoptic Meteorology (Continued)

Temperatures averaged 58.0°F; this was 4.2° below normal. Precipitation totaled 0.28 inches; normal for May is 0.44 inches. The contaminated rain of the 26th amounted to 0.06 inches at the Meteorology Station. At other points within and near the reservation, the totals on this date were:

100-F Area	0.04 inch
Richland	0.19 inch
Benton City	0.30 inch

At all four places, the measurable amounts occurred between 0500 and 1000.

RESEARCH AND DEVELOPMENT ACTIVITIES

Experimental Meteorology

Previously obtained data were summarized in formal reports. Various components of the portable mast were tested.

Earth Sciences

A substantial source of artesian water was detected beneath the 300 Area. A potential flow of 1000 gpm of pure water for emergency use was indicated.

Stratigraphic studies of the geologic formations beneath 200-West Area indicate that the silt-clay bed at a depth of 100 feet is a fossil soil, the westward extension of the wind-deposited Palouse formation. This explains its high carbonate content, and its varying thickness, limited distribution, and sloping attitude, factors which strongly influence the disposal of radioactive wastes and cooling water in that area.

The spectrophotometer with flame attachment was put into operation and water samples, collected from areas of known contamination during the last one and one-half years, were analyzed for sodium content; concentrations ranged from a natural level of about 12 ppm to more than 700 ppm. A correlation is indicated between the concentration of nitrate, sodium ion, and beta-gamma emitters in the ground water. Samples from the 361-T area of contamination indicate a lag of sodium behind the nitrate and beta-gamma emitters.

Simulated aluminum coating wastes, passed through soil columns up to

1203995

Radiological Sciences Department

Earth Sciences (Continued)

220 cm long, formed insufficient or inadequate precipitate to seal the columns; presumably the buffering capacity of the soil against the strong base was insufficient for maximum precipitation. The wastes will therefore not form a self-sealing basin or enclosed earthen tank.

Studies were continued on the adsorption of Cs^{137} and Sr^{90} from a simulated RAW waste onto soils. Cesium adsorption was very low. Similar low adsorption of the strontium contra-indicated cribbing of the wastes.

Industrial Hygiene

The collection efficiency of a cascade impactor backed up by a molecular filter for stack gas sampling was investigated by passing the instrument effluent through an electric precipitator. The impactor and filter assembly together retained 97% of the radioactive aerosol and the filter alone 91%.

A recurring abnormal Redox stack discharge prompted an investigation of particulate size in the stack gas. Cascade impactor samples were collected during coating removal, dissolving, ruthenium oxidation, and centrifugation.

Work was commenced on an investigation of the naphthylethylenediamine procedure for application as a field method for sampling and determining NO_2 from Separations area stacks.

Laboratory analyses for beryllium were conducted on 12 air samples collected in a study of workers' exposures in 313 building during canning with an AlSi melt containing 0.005% beryllium. In general, atmospheric concentrations were within the safe working levels.

Determinations of urine sulfate ratios were made on samples from Bioassay personnel in connection with a study of their exposures to benzol. Although air concentrations were high, the sulfate ratios were all above 85% indicating no undesirable uptake.

Methods

Analysis for radiochromium in reactor effluent by electroplating suffered from interference, presumably from As^{76}.

1203996

DECLASSIFIED

DECLASSIFIED

Radiological Sciences Department

Methods (Continued)

Analysis of 112-T wastes was resumed with preliminary evaluation of self-absorption counting loss in the inert residue. The previously used Ru analysis employing H_2S was replaced with the perchloric acid method because oxidized sulfide resulted in large self-absorption corrections.

Xylene and "Deobase" (fractionated kerosene) were found to be good solvent substitutes for the objectionable toxic benzene presently employed in the Bioassay laboratory. Plutonium extraction was 100% with a standard deviation of 3%.

A prototype smoke generator designed to meet Experimental Meteorology requirements for producing an instantaneous large puff of dense smoke was given preliminary tests. A mixture of $TiCl_4$, phosphorus, and CS_2, as described in the patent literature, was used as the smoke producer with dry ice to develop ejection pressure.

A study of the feasibility of using naturally occurring tritium to trace ground water movement indicated that it would be possible to achieve the requisite sensitivity but the procedure would be expensive and time consuming. It is estimated that a 30-liter sample would have to be electrolyzed to about one cc.

Radiochemical Standards

Studies were made to support and extend earlier data relating the degree of tritium depletion in hydrogen as a function of the excess water present after reaction with calcium. When the percent of tritiated water reacted was varied from 13% to 99%, the concentration of tritium in the generated hydrogen remained essentially constant at about 68% of that calculated assuming no depletion.

Additional absolute disintegration rate measurements of Co^{60} sources were made using the coincidence method, but employing two scintillation counters and measuring gamma-gamma coincidences. Agreement was obtained to within 1% of the beta-gamma coincidence measurement and to within 3% of the rate determined using a mica window counter.

Physics

Circuits for the proportional thimble chamber were revised to permit measurements up to 100 mr/hr. Energy sensitivity was checked with the K

1203997

DECLASSIFIED

Radiological Sciences Department

Physics (Continued)

source and found to reach a peak (four times greater than the high energy response) at 80 KEV. The instrument was used to check previous measurements of a Co^{60} source suspended in a water tank. The latter had been made with an anthracene scintillation counter and were in doubt due to the poor response at low photon energy of such crystals. Results of the two measurements were in agreement. Pressed anthracene scintillators were found to give light pulses three times as great as those from terphenyl scintillators.

The age theory solution of the beta surface dose problem was extended to penetration of the radiation into the backscattering medium. Results of numerical integrations were in agreement with the experimental data.

The results of the measurements of the sink effect of a standard BF_3 tube in the Sigma Pile were shown to be in satisfactory agreement with theory.

Instrument Development

The gamma ray spectrometer was used to plot the spectrum of the radioactive rain falling on the morning of May 26; the results showed that neither I^{131} nor Ru^{103} were major constituents. The gamma activity apparently came from a large number of emitters giving rather broad maxima near 735, 665, and 540 Kev. and sharper peaks at 40, 105, and 165 Kev. Several isotopes in the fission product group emit gamma rays in these energy ranges.

Mechanical design of the equipment for monitoring pig thyroids was completed. A simple discriminator for rejecting all but the 638 Kev. photoelectric line of I^{131} was designed and tested.

An alpha scintillation survey instrument similar in appearance and sensitivity to a Zeuto was completed, calibrated, and turned over for field testing.

Two electronic high voltage supplies for portable instruments were completed and placed on test for intercomparison with a transistor supply and with vibrators.

An experimental transistor counting rate meter gave a current of 1 ma. for 600 c/m input.

Experiments with a dose rate type system using anthracene as the detector indicate rapid circuit response and a sensitivity of about 6 microamperes per mr/hr.

1203998

[redacted]

Radiological Sciences Department

BIOLOGY SECTION

AQUATIC BIOLOGY UNIT

Biological Chains

Final samples of algae and water were taken from the aquaria of the current microcosm experiment. These aquaria contained different amounts of non-radioactive phosphate but were uniform in content of other nutrients and received equal amounts of tracer P^{32}. In low levels (0.05 and 0.5 ppm) of phosphate, the P^{32} was effectively removed from the water by biological processes. In the high-phosphate levels (5, 50, and 500 ppm), the P^{32} level in the water remained essentially constant.

Ecology

Survey of the Columbia River

Limited collection of bottom organisms from the littoral zone was possible during the first half of the month, but the spring rise in river level, amounting to about 9 feet, precluded such sampling during the latter half. Average activity densities at Hanford declined slightly in the plankton to 1.1×10^{-2} μc/g, remained at 4.4×10^{-3} μc/g for bottom algae, and increased 3-fold to 6.2×10^{-4} μc/g for small fish. Significantly high activity density levels were again found in whitefish caught from a popular sports fishing area near Priest Rapids. The maximum values, 1.2×10^{-2} μc/g of scales and 5.3×10^{-4} μc/g of flesh, were approximately 6 times those found in large fish near Hanford.

Effluent Monitoring

Routine monitoring of process waters continued. During the month, mortalities were nil in all concentrations of 10% or less. Slight mortality occurred in influent water concentrations of 25% or greater, and growth was retarded in concentrations of 10% or more, presumably due to chromate addition. No additional mortality of significance occurred among young salmon held in temperatures simulating river conditions and theoretically higher levels for expanded reactor operation.

DECLASSIFIED

1203999

DECLASSIFIED

Radiological Sciences Department

BIOLOGY CONTROL UNIT

Biological Monitoring

Thyroid tissue activity densities of shorebirds at the Redox swamp were 1×10^{-3} μc/g.

Avian predators frequenting the Columbia River bank within plant boundaries had P^{32} activity densities of 1.5×10^{-4} μc/g of soft tissue, and 3.0×10^{-4} μc/g of bone tissue.

Rodent thyroid activity remained at the same high level, in the Redox and Meteorology Tower area, as it was in April.

Clinical Laboratory

There were 1126 routine blood examinations performed, 160 bacteria and algae counts made, and 26 special determinations of I^{127} in rabbit thyroid tissue and feed samples.

Microscopy

There were 23 routine and 18 special histologic preparations of thyroid tissues for the Toxicology Unit. In addition, 63 other tissues were completed for that unit.

Illustrative technical photographs and photomicrographs were prepared for the Metabolism Unit and Biophysics Section.

Autoradiographic mounts of 35 sets were made for three tissues containing I^{131}. A total series of 168 autoradiographs is complete in the study of product skin absorption by rats. Additionally, 45 studies were prepared on product in mice, rabbits and dogs.

Routine service was performed on the electron microscope for the Industrial Hygiene group and Pile Technology Unit.

Radiochemistry

Results obtained from the measurement of radium in carcasses by de-emanation and chemical precipitation are being statistically analyzed for reconciliation of discrepancies.

1204000

Radiological Sciences Department

METABOLISM UNIT

Animal Metabolism

Preliminary data on the Pu content of soft tissues of rats from the lowest feeding level among the 7 groups of rats in the high level chronic Pu absorption experiment were rather unsatisfactory, indicating the possibility of contamination from some external source. This difficulty is being investigated before proceeding with further analyses.

The first phase of the experiment to evaluate the therapeutic effectiveness of zirconium citrate and Ca EDTA in rats was completed, and the data are being statistically analyzed. Although exact values are not yet available, it is evident that the combined early administration of 25 mg of zirconium citrate plus 300 mg of Ca EDTA was more effective than either 50 mg of zirconium citrate or 600 mg of Ca EDTA injected separately. Zirconium citrate alone was more effective in preventing the deposition of plutonium in bone than was Ca EDTA alone.

The experiment comparing the incorporation and retention of deuterium and tritium in the rat was completed except for a few check analyses. Significant preferential incorporation of deuterium was observed in muscle, fat, and brain. This difference between deuterium and tritium incorporation was less than 10% in all cases. No difference was observed in the retention of these isotopes over a 60-day period following incorporation.

Preliminary experiments were performed to develop techniques for the study of As^{74} absorption from the intestinal tract of rats and the distribution within the animal of the arsenic so absorbed.

Microbiology

Preliminary studies indicated that the substance in cell-free bacterial supernatants which is able to effect the removal of plutonium deposited on platinum discs, is fairly labile. Fresh supernatant with the ability to solubilize plutonium lost this ability when stored in the frozen state for a month.

Radiation of weak riboflavin solutions with tritium have shown a considerable resistance of riboflavin as compared with folic acid. Ninety percent destruction of riboflavin under nitrogen saturated solutions occurs

DECLASSIFIED

1204001

Radiological Sciences Department

Microbiology (Continued)

with 7.1 kilorep; under oxygen saturated with 2.9 kilorep. An experiment was conducted to show that the destruction was independent of dose rate within the errors of the experiment.

Plant Nutrition

Using the Neubauer technique with barley on sandy loam, it was found that the concentration factor for Pu^{239} was about 8.8×10^{-4}; approximately a factor of 10 less than yttrium, of 10,000 less than strontium.

Nutrient solution experiments in the greenhouse on the uptake of Pu^{239} indicated that Red Kidney bean acquired a concentration of Pu in its aerial portions 0.029% of that in the nutrient environment; tomato 0.022%, barley 0.02%, and Russian thistle 0.002%, checking with soil experiments and showing a very low order of uptake.

Barley watered with control water and straight effluent still showed no apparent difference.

Plant Metabolism

Changes in cell number and cell mass were, in general, closely parallel following beta radiation. Some increase in size was observed at the highest tritium oxide concentration employed as the source.

Incorporation of tritium by algae into the total cell and into the methanol insoluble fraction from the cells was compared. Whole cells incorporated $45.0 \pm 2.7\%$ of the amount theoretically to be expected on the assumption of no isotope effect. The comparable figure for the methanol insoluble fraction was $41.5 \pm 1.8\%$.

TOXICOLOGY UNIT

Experimental Animal Farm (Toxicology of I^{131})

The experiment comparing the effects of surgical thyroidectomy with radiation thyroidectomy was discontinued. The animals are being sacrificed.

DECLASSIFIED

1204002

DECLASSIFIED

Radiological Sciences Department

Experimental Animal Farm (Toxicology of I^{131}) -Continued

The ratios for I^{131} in thyroid to I^{131} fed daily (Q/q) in May were as follows:

	30 μc/day	15 μc/day	5 μc/day	0.15 μc/day
Original ewes			1.7	2.4
1950 offspring		0.6	0.5	2.0
1951 offspring	1.01		1.2	2.1
1953 offspring	0.16	0.4	0.5	1.2

Histologic damage was evident in the thyroids of lambs born to ewes fed 15 and 30 μc of I^{131}/day.

A semen sample collected from a ram fed 45 μc of I^{131}/day since July 19, 1951, was normal in motility, form, and concentration of live sperm. Both rams that received 135 μc of I^{131}/day for 22 months expired. No normal thyroid tissue was present at necropsy in either animal.

Radioanalysis was completed on 127 samples of milk and 131 samples of cream from sheep. Cream was separated from the skim milk by centrifugation yielding, respectively, 14% and 86% by volume. The activity density (volume units) of skim milk was 3.7 to 5.2 times that of cream.

Physiology

Another series of experiments was initiated in order to confirm previous results with zirconium therapy and to further investigate the efficacy of Ca EDTA in removal of administered plutonium.

Seventy-four mouse pulmonary tissue autoradiographs were examined following intratracheal injection of 0.1 ml Pu $(OH)_4$ colloid containing 0.19 μg Pu. As was anticipated, unequal deposition was observed, and the colloid appeared to disappear with time. Four hours after injection, the colloid was evident in alveoli, bronchioles, bronchi and trachea. Tracheal mucosa appeared to possess the highest concentration. After 48 hours, alveolar concentration did not appear to change appreciably, but there was a suggestion that hilar areas retained Pu longer than peripheral alveoli or that a migration occurs from peripheral to hilar areas.

1204003

FINANCIAL DEPARTMENT MONTHLY REPORT
MAY, 1953

Reductions totaling $2,088,000 were made in the Revised Budget for the FY 1954 in accordance with changes recommended by the Office of the Director of the Budget, corrected schedules being submitted to the Atomic Energy Commission on May 15. The changes included reductions of $1,209,000 in manufacturing costs, $277,000 in protection of plant and personnel expense, and $602,000 in the research and development allocation.

By Supplemental Agreement No. 23, executed June 1, an additional $35,300,000 was obligated under the Prime Contract as of May 31, 1953.

A physical inventory of automotive materials in the custody of the Transportation Section was made as of May 21 as a part of the program for taking physical inventories of all materials (excluding SF materials) by June 30. Preparations were made for taking a physical inventory of excess materials early in June.

Payment of the general salary increase of 1.79%, effective March 16, 1953, was made May 8 to employees represented by unions.

A representative of the Comptroller's Office of the Atomic Energy Commission reviewed AEC product cost report procedures with Financial Department personnel, as a result of which year-to-date statements have been reduced from a monthly to a quarterly basis. Other changes are under consideration as a result of this review which should increase the value of these reports.

A standard hourly rate developed for the operations of the Separations Process Sub-Section was used in reporting May costs. Additional analyses and reviews of preliminary standards for other operations in the Manufacturing Department resulted in further progress toward department-wide use of the standards method of costing.

1204004

A physical inventory of the Hot-Semi Works in the 200 area was completed by the field crew of the Plant Accounting group in connection with unitization of this project. This is in accordance with a procedure established the first of the year under which completed construction projects are inventoried before being transferred to asset accounts.

A new report on absenteeism, started this month, gives Section Managers 1948-1953 absence data for male employees whose 1953 absences have aggregated 14 days or more and female employees whose absences have aggregated 20 days or more.

An Inventory Accounting group has been established in the General Accounting Unit of the Accounting Section to establish procedures and coordinate work in connection with periodical physical inventories; prepare reports and analyses for the information of management; review and appraise inventory procedures and controls of the departments serving as custodians of various materials, making recommendations for possible improvements; and handle inventory accounting and controls. Prior to this time, the work has been covered for the most part by the General Accounts group and the Internal Audit Unit and this change is made in line with a continued emphasis on inventory accounting.

1204005

Statistics

A summary of cash disbursements and receipts (excluding reimbursements by AEC) for the months of May and April, 1953, is shown below:

Disbursements	May	April
Special Expenses - Year, 1952	$ 146 055	$ -0-
Payrolls (net)	3 133 152	2 598 156
Materials and Freight	1 355 595	1 365 568
Payroll Taxes	708 932	764 446
U. S. Savings Bonds	109 223	256 880
Payments to Subcontractors	773 169	897 758
Group Insurance Premium	126 167	131 950
Pension Plan—Employees' Portion	80 009	90 295
Other	165 788	163 124
Total	6 598 090	6 268 177
Receipts		
Rents	$ 106 750	$ 101 864
Hospital	67 248	81 886
Sales to AEC Cost-Type Contractors	58 667	49 947
Electricity	54 208	67 116
Telephone	44 931	39 275
Bus Fares	7 634	7 990
Scrap Sales	-0-	119
Refunds from Vendors	6 198	578
Other	74 517	30 438
Total	420 153	379 213
Net Disbursements	$6 177 937	$5 888 964

Advances as of May 31 and April 30 may be summarized as follows:

	May	April
Cash in bank—contract accounts	$ 3 646 926	$3 436 036
Cash in bank—salary accounts	50 000	50 000
Travel advance funds	125 000	125 000
	3 821 926	3 611 036
Disbursements not reimbursed	6 178 074	5 888 964
Total	$10 000 000	$9 500 000

1204006

Personnel and Organization

	Current Month	Prior Month
Personnel Changes During Month		
Employees at beginning	342	344
Additions and transfers in	7	4
Removals and transfers out	(13)	(6)
Employees at end of month	336	342
Personnel by Unit at Month-End		
General	9	8
Reimbursement Unit	3	4
General Accounting Unit		
General Accounts	20	24
Inventory Accounting	6	0
Plant Accounts	30	30
Accounts Payable	35	35
Accounts Receivable	20	20
General	3	3
	114	112
General Cost Unit		
Consolidated Costs and Budgets	6	6
Plant Auxiliary Operations	15	16
Community Operations and Real Estate	11	11
Radiological Sciences and Other	7	7
Medical	3	3
General	2	2
	44	45
Manufacturing Cost Unit		
Costs and Budgets	32	35
General	7	7
	39	42
Engineering Cost Unit		
Project Section Costs	18	19
Design Section Costs	6	7
Technical Section Costs	10	9
General	6	5
	40	40
Payroll Unit		
Preparation and Employee Records	41	43
Confidential Payroll Records	7	7
Employee Benefit Plans and Payroll Reports	20	22
IBM Procedures	1	1
General	2	2
	71	75
Internal Audit Unit	14	14
Rotational Trainees	2	2
Total	336	342

1204007

Section Reports

The monthly reports of the three sections of the Financial Department, as listed below, are shown on the following pages:

Accounting Section	
General Accounting Unit	Ia-1 through Ia-10
General Cost Unit	Ib-1 through Ib-3
Manufacturing Cost Unit	Ic-1 through Ic-2
Engineering Cost Unit	Id-1 through Id-3
Appropriations Section	Ie-1
Payroll and Auditing Section	
Payroll Unit	If-1 through If-8
Internal Audit Unit	Ig-1

1204008

GENERAL ACCOUNTING UNIT
MONTHLY REPORT - MAY, 1953

ACCOUNTS PAYABLE

During the month of May 3,417 vouchers, amounting to $3,257,119, were entered in accounts payable. Total cash disbursements amounted to $3,355,715. Freight bills numbering 1,281 and amounting to $292,756 were processed for payment. Purchase orders received during the month numbered 2,083 and totaled $1,538,002.

Cash discount earned in May amounted to $3,268. Fiscal year to date cash discount earned totaled $44,179 for a monthly average of $4,016.

Invoices have been received from National Carbon Company, covering shipments of graphite under Special Agreements Nos. G-5 and G-23, in the amount of $1,640,068.81 and $75,968.69, respectively. As of May 31, 1953, payments have totaled $1,480,810.04 on G-5 and $38,785.20 on G-23. In connection with Special Agreement G-5, it is estimated that the forty per cent completion will be reached approximately June 25, at which time prices will be subject to renegotiation as provided for in the contract. Relative to this same contract a meeting was held on May 29 with representatives of the Engineering Department regarding discrepancies between quantities and type of graphite claimed to have been shipped by the vendor and that which was actually received. Arrangements were made with the contract administrator to contact the vendor and resolve these differences.

ACCOUNTS RECEIVABLE

The gross accounts receivable balance at May 31, 1953, amounted to $364,853, a decrease of $31,490 from the balance at April 30, 1953. This decrease was due primarily to the reduction in the balance of Atomic Energy Cost-type Contractor accounts.

Out-patient invoices issued in May at Kadlec Hospital numbered 1,783 and totaled $7,459, as compared to 1,828 in April amounting to $11,204. Although the adult patient day census was higher in May, 101.7 as compared to 82.8 in April, in-patient revenue was considerably less, $59,464 in May as compared to $77,906 in April. Collections during the month totaled $71,747, consisting of payroll deductions of $4,499 and cash collections of $67,248.

Invoices were issued on May 1, 1953, to the Northern Pacific Railway Company and the Union Pacific Railroad Company covering annual rental for the southern railway connection out of Richland. Payment of both invoices, each in the amount of $25,326, was received during May.

1204009

ACCOUNTS RECEIVABLE (CONTINUED)

A report of accounts receivable activity and status of account balances was initiated in May. The first report, covering the month of April, 1953, indicated total charges of $591,883, collections of $585,881, and the balance at April 30 of $396,343. Of the total balance, $240,381 represented current accounts, representing 60.6% of total; $48,820 was thirty to sixty days old, representing 12.3%; $48,284 was sixty to ninety days old, representing 12.2%; $58,858 was over ninety days old, representing 14.9%; and of the amount over ninety days old, $14,366 was at collection agencies.

GENERAL ACCOUNTS

Work continued this month on the standardization of journal entries and the assignment of fixed numbers to standard entries which are issued each month. Emphasis was placed on reducing the number of journal entries issued. During the past two months a reduction in the number of entries issued of over thirty-three per cent has been made, from 753 in March to 498 in May.

An additional advance of $500,000 was obtained from the Atomic Energy Commission this month due to anticipated increased expenditures. This additional amount increased total Atomic Energy Commission advances from $9,500,000 to $10,000,000.

Due to our continued efforts and close liaison and cooperation with all cost units, month-end closings were again advanced this month. Final journal entries were received and booked on June 5, and the general ledger trial balance was issued on the same day. Hanford Atomic Products Operation financial statements will be issued on June 11, which date is considerably earlier than that of prior months.

In view of the fiscal year ending June 30, 1953, considerable preliminary work was completed toward reviewing balances in various general ledger accounts and arranging for necessary accruals in order to book all current year's costs prior to June 30, 1953.

INVENTORY ACCOUNTING

An inventory accounting group was established effective May 1, 1953, which will be responsible for the administration of the financial aspects of work in connection with plant inventories, furnishing accounting interpretations of policies, and establishing internal control and procedures deemed necessary to account for inventory materials.

1204010

INVENTORY ACCOUNTING (CONTINUED)

The principal duties of the group are outlined below:

(1) Establish procedures and coordinate all work in connection with the taking of periodic physical inventories.

(2) Prepare financial reports advising management of turnover rates, values of inventories on hand, and other information relative to inventory activity.

(3) Review and appraise procedures of responsible organizations that affect inventories, and make constructive recommendations for increasing efficiency and effectiveness.

(4) Handle the accounting for inventory materials and maintain controls on all documents affecting inventory accounts.

Prior to May, the above work was handled for the most part by General Accounts and the Internal Audit Unit.

In establishing the group, five non-exempt employees were transferred from General Accounts, and one exempt employee was transferred from the Payroll Unit. Two additional employees are expected to be added during the next month.

During the month of May, time was devoted toward assisting the Internal Audit Unit in connection with physical inventories, consulting with personnel of various sections which are responsible for inventory levels, preparing reports on status of inventory accounts, and developing procedures relative to revised policy regarding booking of excess materials and equipment. With respect to the latter, the Atomic Energy Commission has requested that:

(1) we segregate in our general ledger excess materials of an inventory nature from excess equipment of a capital nature

(2) both excess inventories and excess equipment be booked at acquisition costs, with an offsetting reserve established to reduce the net book value to a fair market price.

1204011

General Accounting Unit

PLANT ACCOUNTS

During May, 1953, the following seven projects were unitized and added to classified plant accounts:

AEC-IA-120	Underbuild of Bonneville Power Administration - Midway Power Line	$ 5 531
AEC-IA-137	Purchase and Installation of Prefabricated Movable Partitions - 703 Building	6 742
CG-402	Salvage and Recovery of Telephone Cable and Telephone Equipment	23 578
CG-424	Water Quality Experimental Program	329 007
CG-430	Improvement of Lighting - 703 Building	42 525
CG-475	Crossheader Pressure Monitoring	26 903
CG-499	The Greenway Parking Compound	27 056
	Total	$461 342

A complete inventory of all office machines assigned to and used by General Electric and the Atomic Energy Commission was taken during the last two weeks of the month. This inventory provided basic information which will be used by the General Cost Unit, effective July 1, 1953, in charging users of this equipment a fixed monthly rental rate.

In connection with the unitization of Project CG-349 - Hot Semi Works, a complete inventory of all related buildings and experimental facilities in the 200 E Area was completed and forwarded to Project Control personnel, who are handling the unitization of this project.

As a result of a review made this month of depreciation accounting, a change in procedure was made during the month, which resulted in the discontinuance of accruing depreciation when the amount accrued to date has reached the recorded amount of the asset. This change will result in a decrease in monthly depreciation accruals of $30,537, which can be detailed as follows:

Fences and Guard Towers	$ 3 512
Fire Fighting Equipment	2 438
Heavy Equipment	24 587
Total	$30 537

In connection with the reactivation of P-10 facilities, all related transferred capital equipment was tabulated and forwarded to the Project Section for inclusion in the revised project proposal. The acquisition cost of this equipment was $1,695,982, with a net book value of $1,588,850.

1204012

General Accounting Unit

PLANT ACCOUNTS (CONTINUED)

At the request of the Electrical Distribution Unit, the valuation of all electrical transmission, distribution, and street and fence lighting facilities (excluding Community) was determined and forwarded to them. The acquisition value of these facilities was reported to be $21,948,043, with a net book value of $17,314,515.

1204013

General Accounting Unit

	May	April
Accounts Payable		
Balance at Beginning of Month	$ 482 770	$ 398 217
Vouchers Entered	3 257 119	3 497 116
Cash Disbursements	3 355 715 DR	3 413 141 DR
Cash Receipts	6 198	578
Balance at End of Month	$ 390 372	$ 482 770
Number of Vouchers Entered	3 417	3 912
Number of Checks Issued	2 071	2 199
Number of Freight Bills Paid	1 281	1 241
Amount of Freight Bills Paid	$ 292 756	$ 277 831
Number of Purchase Orders Received	2 083	1 816
Value of Purchase Orders Received	$1 538 002	$1 418 962
Cash Disbursements		
Payrolls (Net)	$3 133 152	$2 598 156
Material and Freight	1 355 595	1 365 568
Lump Sum and Unit Price Subcontracts	773 169	897 758
Payroll Taxes	708 932	764 446
Special Expenses - Year 1952	146 055	-0-
Group Insurance Premium	126 167	131 950
United States Savings Bonds	109 223	256 880
Pension Plan - Employees' Portion	80 009	90 295
All Other	165 788	163 124
Total	$6 598 090	$6 268 177

1204014

General Accounting Unit

	May	April
Cash Receipts		
Prior Month's Expenditures Reimbursed by Atomic Energy Commission	$5 888 964	$5 023 510
Advances to General Electric	500 000	-0-
Rents	106 750	101 864
Sundry Accounts Receivable	70 516	21 042
Hospital	67 248	81 886
Sales to Atomic Energy Commission Cost-type Contractors	58 667	49 947
Electricity	54 208	67 116
Telephone	44 931	39 275
Bus Fares	7 634	7 990
Refunds from Vendors	6 198	578
Surplus, Salvage, and Scrap Sales	-0-	119
Other	4 001	9 396
Total	$6 809 117	$5 402 723
Bank Balances at End of Month		
Chemical Bank and Trust Company - New York Contract Account	$ 684 494	$ 840 950
Seattle-First National Bank - Richland Contract Account	2 120 153	1 877 132
United States Savings Bonds Account	188 482	267 164
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	48 665	50 862
National Bank of Commerce - Richland Contract Account	842 279	717 954
Total	$3 934 073	$3 804 062

1204815

General Accounting Unit

	May	April
Accounts Receivable		
Hospital	$ 143 808	$ 148 147
Atomic Energy Commission Cost-type Contractors	64 070	100 396
Sundry	52 817	59 117
Equipment Sales to Facilities	36 908	37 460
Electricity	29 409	20 087
Telephones	25 694	19 652
Rents	9 984	10 519
Safety Shoes	1 935	728
Loans to Employees	228	237
Subtotal	364 853	396 343
Reserve for Bad Debts	37 744 CR	37 812 CR
General Ledger Balance	$ 327 109	$ 358 531
Hospital		
Number Out-patient Invoices Issued	1 783	1 828
Charges During the Month	$ 66 923	$ 89 110
Collections - Cash	67 248	81 886
- Payroll Deductions	4 499	4 641
Atomic Energy Commission Cost-type Contractors		
Number Invoices Issued	58	55
Amount of Invoices Issued	$ 22 341	$ 41 480
Cash Received	58 667	49 947
Sundry		
Number Invoices Issued	428	412
Amount of Invoices Issued	$ 53 922	$ 28 851
Cash Received	70 516	21 042
Electricity		
Number of Bills Issued	6 197	6 165
Amount of Bills Issued	$ 63 724	$ 64 266
Cash Received	54 208	67 116
Telephones		
Working Telephones (excludes official telephones)	6 024	5 959
Telephone Work Orders Processed	335	300
Charges During the Month	$ 51 889	$ 47 500
Cash Received	44 931	39 275

1204016

General Accounting Unit

	May	April
Accounts Receivable		
Rents		
Houses		
Number Houses Occupied	6 040	6 045
New Leases and Lease Modifications	76	105
Lease Cancellations	68	98
Charges During the Month	$ 245 873	$ 245 440
Collections - Cash	40 834	41 633
- Payroll Deductions	204 099	204 738
Dormitories		
Number Rooms Occupied	1 040	1 028
New Assignments	85	75
Removals	66	89
Charges During the Month	$ 15 952	$ 15 808
Collections - Cash	3 747	3 811
- Payroll Deductions	12 593	12 526
Facilities		
Number Facility Leases	142	142
Revenue	$ 62 169	$ 56 420

	Number	Amount
Uncollectible Accounts (Total to Date)		
Accounts Forwarded to Collection Agencies	501	$ 43 363
Accounts Returned as Uncollectible	136	20 544
Collections	177 -1)	6 872 -2)
Balance at Collection Agencies May 31, 1953	217	$ 15 947

(1- Includes 148 accounts collected in full and 29 accounts partially collected.

(2- Represents total collections, half of which is remitted to General Electric.

1204017

General Accounting Unit

	May	Total to Date
Surplus, Salvage, and Scrap Sales		
Number of Sales	-0-	594
Revenue (excluding Sales Tax)		
Materials or Equipment	$ -0-	$ 644 630
Tract Houses		
Revenue to Atomic Energy Commission	-0-	36 174
Revenue to General Electric	-0-	15 773
Total	$ -0-	$ 696 577

	May	April
Travel Advances and Expense Accounts		
Cash Advances - Beginning of Month	$ 55 483	$ 46 731
Advances During the Month	53 658	68 121
Expense Accounts Submitted	42 436 CR	45 985 CR
Cash Refunded	10 253 CR	13 384 CR
Cash Advances - End of Month	$ 56 452	$ 55 483
Outstanding Cash Advances		
Current	$ 40 880	$ 45 472
Over 30 Days	15 572	10 011
Total	$ 56 452	$ 55 483
Travel and Living Expenses		
Paid Employees	$ 41 192	$ 42 016
Billed to Government	39 964	40 536
Balance in Variation Account at End of Month	19 883 DR	18 655 DR

1204018

GENERAL COST UNIT
MONTHLY REPORT
MAY, 1953

As a result of agreements reached between Hanford Atomic Products Operation and the Atomic Energy Commission management, reductions totaling $2,088,000 were made in the Revised Budget for FY 1954 and revised schedules were submitted to the Commission incorporating these changes. Additional information was provided the Atomic Energy Commission - Budget Division as requested regarding supplemental detail of various budget programs.

An analysis of security costs for FY 1953 incurred by Hanford Atomic Products Operation was made at the request of the Atomic Energy Commission. This information is to be incorporated in a report showing total Hanford security costs including HOO and all collateral contractors and will be submitted to Washington.

Additional assistance was provided to the Atomic Energy Commission Budget Office as requested regarding various budget programs.

Consolidated Costs and Budgets

After transmittal of budget documents to the Atomic Energy Commission on April 24, 1953 information was received by Hanford Operations Office - Atomic Energy Commission that certain changes had been made by the Office of the Director of the Budget. A revision incorporating the recommended changes was submitted to the Atomic Energy Commission on May 15, 1953 and included reductions of $1,209,000 in Manufacturing Cost, $277,000 in Protection of Plant and Personnel Expense and $602,000 in Research and Development Program allocation for FY 1954. Some reductions were also made in the Research and Development budget for FY 1955.

Recommendations for rental rates for office equipment were made, after completion of an analysis of similar charges in other locations. Rates will be used as recommended with only minor changes and will be effective July 1, 1953.

A consolidated bogey estimate for Research and Development Programs was prepared for consideration by Management. It is intended to issue this monthly along with production cost bogeys presently prepared.

An analysis of FY 1953 Security costs for Hanford Atomic Products Operation was completed on May 26 at the request of the Atomic Energy Commission. Prior to completion of the detailed report assistance was given to Commission personnel in the development of estimates that could be used in committee hearings in Washington.

A summary of actual personnel required for operation of each facility is now being prepared on a monthly basis. This is an Atomic Energy Commission report (PER-11) that provides related breakdown to personnel forecast

1204019

PER-40 previously issued. The first report covers personnel assignments as of May 31, 1953 and was issued on June 2, 1953.

Plant Auxiliary Operations

Operation of the Village Electrical System (E-4 Contract) was transferred to Community Operations effective April 27, 1953. This was accomplished quite satisfactorily by working in cooperation with Community Cost employees in solving various problems that normally arise when responsibilities and procedures are changed.

New liquidation rates established in May are as follows:

1. Rate for Procedures Unit was established at $4.00 per hour for Forms Design and $5.00 per hour for Procedures.

2. Area Bus Service rates were increased 10% to each area. These newly established rates were used prior to July, 1952.

Inventory Account 10.1-87 Communications was established by Internal Audit Unit for use of the Telephone Unit. Control of this account is currently the responsibility of cost.

Plans are being formulated for handling the cost of the Instrument Maintenance Unit for the 700-1100 Areas which was transferred to Plant Protection Section on May 25, 1953. Progress is also being made on the new method of liquidating office machine costs to be effective July 1, 1953.

Community

An analysis of all facility leases is being made to insure that all information provided to Management regarding facilities is based on current leases.

Some work is being done to relate our Cost experience to a normal city operation. This work is being done as time permits.

Medical

During the month the Cost Supervisor visited eleven hospitals throughout the state in order to gather information which can be of use in comparing operations of Kadlec Hospital with hospitals in other locations. Such comparisons as room rates, wage scale, numbers of employees per patient day, etc., will be summarized and submitted to management.

A unit cost study of Industrial Medical by the four types of programs, Preventive Medicine, Curative Medicine, Constructive Medicine and Educational Medicine is currently being prepared.

1204020

Staff

As in the previous month, some critical analysis and review work was done on all charges to Biological Research and Development in a concerted effort to reduce the budget overrun of that program.

Approximately 50 man-hours of effort were expended in reviewing and revising the liquidations to other Departments from the Staff Departments. This involved a comprehensive review of the basis of all charges as well as a detailed study of the numbers of employees involved and the costs pertinent to each employee. In the case of charges to Design and Project Section some considerable time was spent in determining whether or not charges were incremental.

1204021

MANUFACTURING COST UNIT
MAY, 1953

GENERAL

Following the Safety and Security Meeting held on May 29, round table discussions were held by all groups. New procedures and current interpretations of O.P.G's pertaining to the Manufacturing Cost Unit were discussed in this meeting.

PRODUCT COST ACCOUNTING

A staff member of the Comptroller's Office, Accounting, Atomic Energy Commission, Washington, D.C. has again been with us reviewing the A.E.C. Product Cost Report procedures. Through discussions with him we were able to modify the report by preparing all year to date statements on a quarterly, rather than a monthly basis. Other aspects of this work have been discussed with him and are currently under consideration with the objective of changing or modifying to provide more valuable information to the A.E.C. and the Company.

An analysis of the current cost of production for the first nine months of Fiscal Year 1953 resulted in the issuance of a credit billing adjustment for all plutonium shipments during that period. Any under or over liquidation remaining in the inventory accounts at the end of the fiscal year will be transferred to the A.E.C.

One termination in May and one in June may result in a somewhat delayed issuance of the Product Cost Report for the month of May.

BUDGETS

A recent document issued by the Manager - Manufacturing Department requesting current forecasts be compared with budgeted funds requires a breakdown by months of the 1st, 2nd, and 3rd Quarters of the Operating Budget for FY 1954 as soon as Possible.

The recent reduction in budgeted funds plus the transfer of P-10 Extraction to the Separations Section results in considerable revisions of details of the Manufacturing Department Budget.

REPORTS AND RECORDS

In order to try to meet the early closing dates established, the area clerks were brought in from the field to work on their sections liquidation of costs, operating and cost reports. In addition to helping the Reports and Records Group, it enables the area clerks to get advance cost explanations for the Area Cost Analysts.

A standard rate per hour was developed and used to distribute the costs of the Separations Process Sub-Section. Previously, these costs were accumulated and distributed by the use of routine work orders.

Two additional cost reports were issued for the Separations Section this month.

Code 6216 - Operations Unit - 234-5 Facility
Code 6218 - Operations Unit - TBP

1204022

REPORTS AND RECORDS (Continued)

Copies of all Separations Cost reports showing methods of distribution and allocation of costs to the various processes were sent to the area representative with a request that they be reviewed with operating personnel for possible improvements in distribution or presentation.

METAL PREPARATION SECTION ACCOUNTING

Meetings on standard costs have been scheduled with operating supervision in an effort to utilize standard cost information as a basis for more efficient control of direct labor and materials. A report was prepared on the preparation of slugs, triple dip process, showing a comparison of actual costs with standard costs for the period January through April, 1953.

A review was made of essential materials to determine minimum quantities and possible obsolete materials resulting from the discontinuance of the melt plant, oxide burning, chip recovery, and machining processes.

A reconciliation of the Electronic Tube Inventories was made and unit prices were adjusted.

SEPARATIONS SECTION ACCOUNTING

Monthly variance reports covering those portions of Separations Section Costs under the Standards Program were prepared. These reports covered labor and material for the 221-T, 224-T, 231, 202-S and 222-S Buildings.

Unit Cost explanation and forecasts covering period May through October for the $BiPO_4$, Redox, 234-5, TBP, and UO-3 were prepared and submitted at the monthly cost meeting held on May 22, 1953 in the 200-W Area.

An analysis of the expenditures of the Plant Engineering sub-section was prepared at the request of the Superintendent of Plant Engineering Separations sub-section.

A secret rough draft report covering the activities during the visit at the Rocky Flats Plant, Denver, Colorado, was prepared in conjunction with operating personnel and submitted to Production Superintendents, Operations Section.

Analysis of the charges to the various expense codes in the Separations Section and charges by foreman were made at the request of the General Superintendents of the Power Maintenance sub-section.

REACTOR SECTION ACCOUNTING

A description of cost elements was prepared and distributed to the Operations sub-section. Individual components of costs were explained and current rates charged for services were detailed. This will serve as a guide for coding of salaries and as an aid for cost reduction and control.

A procedure was developed whereby the Work Order system will be utilized by the Power and Operations sub-section for performance of work for other departments. An accurate record of work performance on individual jobs to support billing will be obtained by utilizing this method.

1204023

ENGINEERING COST UNIT
MONTHLY REPORT - MAY, 1953

DESIGN COST

There was little change in the number of cost transfers to and from Kaiser during the period; however, the dollar volume did reflect reductions largely due to decreases in stores activity.

	Number of Invoices		Total Cost Billed	
	To Kaiser	From Kaiser	To Kaiser	From Kaiser
May	58	16	$109 482.51	$ 89 690.00
April	52	17	$159 831.07	$132 747.66

Cost Transfers to Kaiser Engineers from General Electric:

	May	April
Services - Clerical, Patrol, Fire, Electricty, Printing	$ 41 844.79	$ 36 469.15
Major Construction Program Equipment - Net Book Value	37 824.70	45 499.22
Returned Major Construction Program Equipment Billings	10 663.23	
Stores Issues Other Than Excess	15 288.91	78 571.54
Work Order Costs	6 637.64	2 754.37
Excess Material Withdrawals	6 536.83	7 296.35
Railroad Car Handling	5 883.04	3 960.00
Reproduction	1 091.47	
Other	615.52	2 074.47
Major Equipment Overhaul and Repair - Monthly Accrual	(11 559.63)	(15 955.47)
Charge for Major Equipment and Repair		1 305.12
Kaiser Engineers Inventory Declared Excess	(5 343.99)	(2 143.68)
	$109 482.51	$159 831.07

Cost Transfers from Kaiser Engineers to General Electric:

	May	April
Stores Issues	$ 36 331.99	$ 75 020.80
Graphite Fabrication	20 298.58	33 486.74
Work Order Costs	19 435.74	22 489.44
Transfer of Major Construction Program Equipment	10 765.90	
White Bluffs Utilities and Services Costs	2 857.79	1 750.68
	$ 89 690.00	$132 747.66

1204024

Engineering Cost Unit

DESIGN COST (Continued)

	Number of Invoices		Total Cost Billed	
	To Blaw-Knox	From Blaw-Knox	To Blaw-Knox	From Blaw-Knox
May	26	1	$ 32 746.57	$ 7 683.60
April	21		$ 31 673.46	

Cost Transfers to Blaw-Knox from General Electric:

	May	April
Excess Material Withdrawals	$ 13 695.73	$ 25 377.99
Stores Issues - Other Than Excess	9 026.02	3 897.44
Major Construction Program Equipment - Net Book Value	6 673.56	1 791.39
Utility Services-Telephone, Water	1 081.49	
Services - Clerical - Printing, Patrol, Fire, Electricity	928.53	
Reproduction	686.90	
Railroad Car Handling	640.00	
Work Order Costs	14.34	
Other		606.64
	$ 32 746.57	$ 31 673.46

Cost Transfers to General Electric from Blaw-Knox:

	May	April
Major Construction Program Equipment - Net Book Value	$ 7 683.60	

Design Section cost statements for the month of April were issued May 8, 1953. A six month Design Section Cost bogey was prepared for inclusion in the Engineering Department Research and Development bogey report for the first time.

Preliminary work was started on adjustments received from the Atomic Energy Commission to the Budget for Fiscal Year 1955 and Revision of Budget for Fiscal Year 1954.

A study is being made of better methods of presenting Design Section costs. Particular emphasis has been placed on an analysis of cost based on a comparison to budget.

PROJECT COST

A contract with Frank Mayer Engineering Company was entered into on April 30, 1953 for the furnishing of nine Designers and six Draftsmen. The contract is for six months and effective on date first employee leaves home office in Los Angeles. First employee arrived Richland on May 11, 1953 and all employees had reported in Richland by May 21, 1953. Cost of this contract is being changed to the Drafting Sub-Unit and liquidated at the standard rate for drafting to work assignments.

1204025

PROJECT COST (Continued)

Several meetings and discussions were held during the month to devise system and definitions for the segregation of Project Design Costs. It is proposed to segregate design costs into three phases, namely: Preliminary Design, Detail Design and Design Liaison. Drafts of the proposal have been distributed to the Design and Project Sections for comment. If the proposed system is acceptable, it is anticipated that costs will be reported and recorded in the various phases effective July 1, 1953.

During the month of May the Atomic Energy Commission transferred their cost on C-431-A, 100-C Water Plant to General Electric in order that all costs on Project C-431 may be reported and recorded in one place during final close-out of this project. This transfer amounted to $211,000.00.

Financial Closing Statements were issued covering the following projects during the month:

CA-480 Remodeling 722-C Building For Use As An Office Machine Repair Shop
IR-128 Remote Supervisory Control - 100 Area Water Plants

Contruction Work in Progress - Engineering report for the month of April was furnished the Atomic Energy Commission on May 8, 1953. All other financial statements were issued by May 11, 1953.

TECHNICAL COST

Monthly operating cost reports were issued to the managers of Technical Section and Engineering Administration Sub-Section on May 9, 1953. Research and Development detailed reports were issued on May 13, 1953, just after the monthly cost analysis letter of May 12, 1953.

The Budget for FY 1955 and Revision of Budget for FY 1954 as submitted in April was reduced in May. Technical Section Research and Development was reduced by $150,000 in FY 1954 and $276,000 in FY 1955.

A recast of the budget submitted for Technical Section in April, 1953 has been delayed in order to include any later information received from AEC. Work on the recast of Engineering Administration Sub-Section's budget was practically completed by month's end.

Standard liquidation rates were reviewed once again with an eye toward the elimination of all overliquidations by June 30, 1953. Pile and Fuel Technology and Equipment Development rates were adjusted.

At present all indications are that costs will very nearly match the authorized funds at the end of this fiscal year. No overruns are expected, however.

During May responsibility for P-10 Process Assistance was transferred to Separations Technology Sub-Section from Pile Technology Sub-Section. Accordingly, a new organizational cost account was established as follows:

5234 Separations Technology - P-10

1204026

APPROPRIATIONS SECTION
MONTHLY REPORT - MAY, 1953

There were no projects submitted to the Appropriations and Budget Committee for approval in May.

Informal requests approved by the Sub-Committee in May amounted to $8,831, equipment $71,750, for a total of $80,581. Equipment approvals to date, plus expenditures and commitments of prior periods, amount to $854,900 of the total available from the Financial Plan of $970,000.

There were nine projects and informal requests awaiting Commission approval at May 31, 1953, amounting to $6,708,500, the lowest level of unprocessed proposals in several years.

1204027

PAYROLL UNIT

MONTHLY REPORT

MAY, 1953

Work was continued during May on retroactive payments under the vacation plan to employees who worked extended schedules during the fiscal year ended March, 1952. Payment of the adjustment to eligible employees will be made in June.

The retroactive portion of the general salary increase of 1.79 per cent was paid to approximately 4100 bargaining unit employees on May 8, 1953.

A schedule for destruction of IBM payroll record cards to relieve the storage problem in Computing Unit was prepared in May. The schedule will be reviewed periodically after we have had additional experience with IBM. It is intended that the number of such cards to be retained permanently be held to a minimum.

Revision of Organization and Policy Guide covering the General Electric Employee Purchase Plan was issued on May 25, 1953, to cover recent changes in the Plan.

Micro-filming of approximately 19,000 individual employees' payroll records for off-site storage was completed in May. As a result of the microfilming, copies of records previously sent to off-site storage will be destroyed.

During May, four employees of Payroll were loaned to Internal Audit for four days to assist with the physical inventory.

Special reports of excess absenteeism were issued to Section Managers with respect to employees whose cumulative 1953 absences aggregated 14 days in the case of male employees and 20 days in the case of female employees. Each of the reports also included the absenteeism record of the individual for the past five years. Similar reports will be issued monthly in the future.

At the request of the Employee Benefit Accounting Services Section, Schenectady, a classification of employees participating in the G. E. Insurance Plan was prepared giving certain information segregated by amount of insurance coverage, date of birth, and other pertinent data for the purpose of establishing tentative premium payments to the Metropolitan Insurance Company.

Request for Reimbursement Authorization was forwarded to Hanford Operations Office, AEC, to change the amount of the award to employees for each patent application filed from $25 to one share of General Electric Company stock plus an additional amount to cover withholding tax on the value of such stock.

Requests for Reimbursement Authorization to cover changes in payment policies for bargaining unit employees as a result of recent union agreements, and changes for non-bargaining unit employees, were prepared by Union Relations Section and reviewed by Payroll prior to submission to the Hanford Operations Office, AEC, on May 29, 1953.

1204028

Request for Reimbursement Authorization was prepared and submitted to the Hanford Operations Office, AEC, under date of May 29, 1953, amending our Request dated November 5, 1952, to cover the costs to the Hanford Atomic Products Operation under the General Electric Insurance Plan. The amendment covered revision of the schedule of life insurance coverage for employees in certain annual earnings brackets.

An award was made by the Suggestion Committee to an employee of Payroll in the amount of $10, for a suggestion to use window envelopes for mailing benefit checks and transmittal letters under the Insurance Plan.

1201029

Payroll Unit (continued)

STATISTICS

NUMBER OF EMPLOYEES	Total	Monthly Payroll	Weekly Payroll
Changes During Month -			
Employees on Payroll at beginning of month	8 668	2 288	6 380
Additions and transfers in	85	4	81
Removals and transfers out	(120)	(13)	(107)
Transfers from weekly to monthly payroll		15	(15)
Transfers from monthly to weekly payroll		(2)	2
Employees on payroll at end of month	8 633	2 292	6 341

Number at month-end - by Payroll classifications	May	April
Bargaining group - HAMTC	3 446	3 460
- Building Services	70	67
- Two Platoon Firemen	46	46
- Hanford Guards	478	486
Other weekly - non-bargaining	2 347	2 367
Executive, administrative and operating	1 759	1 755
Professional	486	486
Other Monthly	1	1
Total	8 633	8 668

Number at month-end - by departments		
Engineering	1 541	1 519
Manufacturing	3 300	3 305
Plant Auxiliary Operations	2 152	2 178
Community Operations and Real Estate	436	439
Financial	336	342
Employee & Public Relations		
Technical Personnel	82	94
Other	114	117
Radiological Sciences	369	372
Medical	254	252
General	18	18
Law	5	5
Accountability	22	23
Property Management and Control	4	4
Total	8 633	8 668

OVERTIME PAYMENTS DURING MONTH		
Weekly Paid Employees	$ 88 769 (a)	$71 507 (b)
Monthly Paid Employees	31 054 (c)	4 838 (d)
Total	$119 823	$76 345

NUMBER OF CHANGES IN SALARY RATES AND JOB CLASSIFICATIONS	1 248	1 396

(a) Includes 5 weeks ended 5-24-53.
(b) Includes 4 weeks ended 4-19-53.
(c) Payments cover period April 1 through April 30, 1953.
(d) Payments cover adjustments for prior months only. In accordance with new procedure overtime will be paid in month following actual performance.

Payroll Unit (continued)

GROSS PAYROLL PAID DURING MONTH	May	April
Engineering	$ 810 862	$ 730 331
Manufacturing	1 791 767	1 476 766
Plant Auxiliary Operations	1 015 344	836 013
Community Operations & Real Estate	199 913	167 087
Other	568 882	496 508
Total	$4 386 768 (a)	$3 706 705 (b)

ANNUAL GOING RATE OF PAYROLL		
Base Plus Overriding Adjustment	$43 423 758	$43 472 367
Overtime	1 038 994	1 108 237
Isolation Pay and Area Differential	1 891 742	1 916 220
Shift Differential	435 744	446 630
Other	33 460	38 288
Total	$46 823 698	$46 981 742

AVERAGE HOURLY BASE RATES (Includes overriding adjustment)		
Bargaining group - HAMTC	$2.270	$2.265
- Building Services	1.737	1.741
- Two Platoon Firemen	2.186	2.193
- Hanford Guards	1.974	1.974
Other Weekly - non-bargaining	1.932	1.930
Executive, administrative and operating	3.182	3.172
Professional	3.472	3.461
Other Monthly	2.550	2.550
Total	$2.411	$2.403

AVERAGE EARNINGS RATE PER HOUR	May (c)			April (c)		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	$2.065	$3.329	$2.763	$2.073	$3.336	$2.758
Manufacturing	2.499	3.360	2.668	2.488	3.339	2.654
Plant Auxiliary Operations	2.150	3.105	2.283	2.147	3.092	2.279
Community Operations & Real Estate	2.194	2.816	2.403	2.187	2.811	2.399
Other	1.960	3.529	2.364	1.965	3.512	2.355
Total	$2.261	$3.302	$2.533	$2.257	$3.294	$2.524

(a) Includes payments for five-week period ended May 24, 1953, in the case of weekly paid employees.

(b) Includes payments for four-week period ended April 19, 1953, 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.

EMPLOYEE BENEFIT PLANS

Pension Plan Participation in Plan	May	April
Number participating at beginning of month	7 542	7 559
New participants and transfers in	60	46
Removals and transfers out	(66)	(63)
Number participating at end of month	7 536	7 542
% of eligible employees participating	95.3%	95.2%

1204631

Payroll Unit (continued)

Employees Retired	May	Total to Date
Number	2	272 (a)
Aggregate Annual Pensions Including Supplemental Payments	$ 511	$62 573
Amount contributed by employees retired	1 278	79 741

(a) Includes 14 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.

	May	April
Number who became eligible for participation	58	48
Number who applied for participation	54	44
Number who elected not to participate	2	4
Replies not received	2	0

Applications for Retirement Pensions	May	Year to Date
Normal Retirement Pensions	2	11
Optional Retirement Pensions	2	5

Insurance Plan (c)

Personal Coverage	May	April
Number participating at beginning of month	8 717	8 771
New participants and transfers in	74	56
Cancellations	(6)	(17)
Removals and transfers out	(92)	(93)
Number paticipating at end of month	8 693	8 717
% of eligible employees participating	98.8%	98.9%

Dependent Coverage		
Number participating at beginning of month	5 731	5 741
Additions and transfers in	51	41
Cancellations	(3)	(10)
Removals and transfers out	(29)	(41)
Number participating at end of month	5 750	5 731

Claims - Disability Benefits (d)		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	126	222
Daily Hospital Expense Benefits	125	262
Special Hospital Services	150	309
Surgical Operations Benefit	112	187
Physicians' Attendance	99	194
Dependent Benefits		
Daily Hospital Expense Benefits	195	407
Special Hospital Services	240	506
Surgical Operations Benefits	250	383
Amount of claims paid by insurance company:		
Employee Benefits	$31 761	$ 64 262
Dependent Benefits	30 255	58 174
Total	$62 016	$122 436

(c) Current month statistics include 161 insured employees not active on the payroll while prior month statistics include 160 insured employees not active on the payroll.

(d) Statistics cover only claims paid and not all claims incurred during the month.

Payroll Unit (continued)

Number of Disability Claims Forwarded to Insurance Company	May	April
Hospital Benefits		
Kadlec Hospital	545	737
Other Hospitals	106	129
	651	866
Weekly Sickness and Accident Benefits	183	198
Total	834	1 064

Claims - Death Benefits (a)	May	Total to Date
Number	1	122
Amount	$6 000	$743 513

Claim Payments	May	April
Number of Checks	1 033	1 919
Number of Claims	761	1 382
Amount of Benefits	$ 62 016	$ 122 436
Total benefits paid since December 1, 1950 to date	$1 881 794	$1 819 778

Vacation Plan

Number of employees granted permission to defer one week of their 1953 vacation to 1954

	May			Year to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	19	24	43	28	54	82
Manufacturing	15	4	19	149	46	195
Plant Auxiliary Operations	13	4	17	134	20	154
Community Operations & Real Estate	2	0	2	9	6	15
Financial	1	2	3	13	5	18
Employee and Public Relations	0	0	0	1	2	3
Radiological Sciences	2	0	2	4	3	7
Medical	0	0	0	3	1	4
General	0	0	0	0	0	0
Total	52	34	86	341	137	478

(a) Total to date includes all claims under the old and new Insurance Plans and 10 deaths on which accidental death benefits were paid.

U. S. Savings Bonds	May	April
Number Participation		
Number participating at beginning of month	4 370	4 332
New authorizations	71	102
Voluntary cancellations	(55)	(39)
Removals and transfers out	(21)	(25)
Transfers in	0	0
Number participating at end of month	4 365	4 370
Percentage of Participation		
G. E. Employees Savings & Stock Bonus Plan	44.3%	44.3%
G. E. Savings Plan	11.2%	10.9%
Both Plans	50.6%	50.5%

1204033

Payroll Unit (continued)

EMPLOYEE BENEFIT PLANS (continued)

U. S. Savings Bonds (continued)

Annual Going Rate of Deductions	May	April
G. E. Employees Savings and Stock Bonus Plan	$1 676 161	$1 660 809
G. E. Savings Plan	396 198	462 281
Total	$2 072 359	$2 123 090

Withdrawals of Bonds from G. E. Employees Savings and Stock Bonus Plan	May	Year to Date
Number of participants withdrawing bonds	127	618
Maturity value of U. S. Savings Bonds withdrawn	$59 800	$273 066

Special Absence Allowance Requests	May	April
Number submitted to Pension Board	3	3

Military Allowance Payments	May	Total to Date
Number	4	59
Amount	$1 678.46	$21 466.20

Employees Who Have Entered Military Service

	Total to Date				
	Called to Duty	Volunteered for Duty	Number Reactivated	Number Resigned-a)	Net
Reserve Officers	40	4	(4)	(1)	39
Enlisted Reserve	56	6	(23)	(2)	37
National Guard	6	0	(4)	0	2
Selective Service	75	0	(24)	(1)	50
Voluntary Enlistments	0	117	(3)	(4)	110
Total	177	127	(58)	(8)	238

-a) Employees who were removed from the roll to enter Military Service and subsequently had their continuous service broken.

Annuity Certificates (for duPont Service)	May	Total to Date
Number Issued	0	96

Suggestion Awards		
Number of awards	114	2 110
Total amount of awards	$2 700	$42 585

Employee Sales Plan

	May		
	Major Appliances	Traffic Appliances	Total
Certificates Issued	85	336	421
Certificates Voided	11	4	15

	Certificates Issued	Certificates Voided	Net Sales
Aggregate Sales of Major Appliances	$27 741.70	$2 759.50	$24 982.20

Payroll Unit (continued)

Patent Award Payments	May	Year to Date
Number of award	0	3
Amount	0	$75.00

ABSENTEEISM PERCENTAGES	May	April
Weekly - Men	2.22%	2.21%
Weekly - Women	3.48%	3.52%
Total Weekly	2.54%	2.54%
Monthly	1.18%	1.42%
Grand Total	2.16%	2.23%

CHECK-OFF OF UNION DUES

Number of Payroll Deduction Authorizations in Effect	4-30-53	Cancellations And Terminations	Additions	5-31-53
Hanford Atomic Metal Trades Council	1 502	22	23	1 503
Building Service Employees International Unit, Local 201 (Medical Department Employees)	26	0	3	29
Hanford Guards Union, Local 21, of the International Guards Union of America	221	7	6	220
Total	1 749	29	32	1 752

NUMBER OF DEDUCTIONS FROM SALARIES	May	April
House Rent	5 186	5 088
Dormitory Rent	812	823
Barracks Rent	45	50
Trailer Space Rent	185	184
Telephone	0	2
Hospital	574	446
Total	6 802	6 593

SALARY CHECKS DEPOSITED	May		April	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle-First National Bank	729	932	729	928
North Richland Area Office - Seattle - First National Bank	7	4	9	4
Richland Branch - National Bank of Commerce	557	399	539	392
Out of state banks (Schenectady Staff)	0	1	0	1
Total	1 293*	1 336	1 277**	1 325

PREFERENTIAL RATES	May	April
Number Eliminated	0	0
Number Currently in Effect	804	804

* Week ended 5-24-53
** Week ended 4-19-53

1204035

INTERNAL AUDIT UNIT
MONTHLY REPORT
MAY, 1953

Work continued on the program for taking physical inventories of all Hanford Atomic Products Operation materials (excluding SF material) by June 30, 1953. As of the end of May, materials approximating 75% of the value of the inventories controlled by General Electric had been physically inventoried. The principal activities during the month were:

1. The physical inventory of general maintenance materials in the custody of Stores Unit, begun on April 30 (see Monthly Report for April), was continued on May 1 and 2.

2. Automotive materials in the custody of the Transportation Section were inventoried as of May 21, 1953. This inventory, representing approximately 20,000 line items stored in 10 locations, required the participation of 15 Financial Department employees and 60 Transportation Section employees. Withdrawals of automotive materials (other than emergency withdrawals) and automotive maintenance operations were discontinued on the day shift of May 21 in order to take the inventory. The completion of the physical count, records posting, and rechecking by Saturday night, May 23, required overtime work by some of the inventory personnel on Thursday night, May 21, and on Saturday, May 23.

3. Surveys were made of the materials which remain to be inventoried during June. The surveys included inspection of the storage locations and review of the control records to facilitate inventory plans and instructions. Physical inventories scheduled for June are:

Material	Custodian	Scheduled Dates
Excess Materials	Stores Unit	June 10-13
General Maintenance Materials	Administrative Area Maintenance Unit	June 18-20
General Maintenance Materials	Community Operations and Real Estate Department	June 18-20
Railroad Materials	Transportation Section	June 24

4. Reports issued in May of physical inventories taken in January showed the following results:

Material	Physical Inventory	Book Value	Overage or (Shortage)
Fuel and Lubricants	$ 91 062	$ 96 036	($ 4 974)
Special Materials	283 978	177 507	106 471 -a
Graphite	1 244 968	1 286 174	(41 206)-b

(a- Includes $107,631 covering items not previously booked in inventory.
(b- Represents revaluation rather than a shortage.

1204036

PLANT PROTECTION SECTION

MONTHLY REPORT - MAY 1953

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	2	2		
Administration Area Maintenance	68	60		8 (a)
Security and Patrol	541	533		8 (b)
Safety and Fire Protection	151	153	2 (c)	
Office Unit (Laundry and Building Services, Clerical and Records Control)	322	317		5 (d)
TOTALS	1,084	1,065	2	21

NET DECREASE: 19

(a) - Administration Area Maintenance

1 - Transferred in
9 - Transferred out

(b) - Security and Patrol

2 - New Hires
2 - Reactivated
4 - Transferred out
1 - Deactivated
7 - Terminations

(c) - Safety and Fire Protection

2 - Transferred in
1 - Reactivated
1 - Terminated

(d) - Laundry and Building Services

2 - New Hires
2 - Reactivated
2 - Deactivated
1 - Transferred out
3 - Terminations

Clerical Services

5 - New Hires
1 - Reactivated
3 - Transferred in
6 - Transferred out
4 - Deactivated
2 - Terminations

1204037

SAFETY AND FIRE PROTECTION UNIT

Injury Statistics

	APRIL	MAY	YEAR TO DATE	COMPARATIVE PERIOD, 1952
Major Injuries	0	0	5	5
Sub-Major Injuries	2	3	8	12
Minor Injuries	325	326	1,718	1,953
Exposure Hours	1,462,185	1,458,912	7,281,406	7,469,794
Major Injury F/R	0.00	0.00	0.69	0.67
Major Injury S/R	0.00	0.00	0.183	0.026
Penalty Days	0	0	75	75
Actual Days	0	0	192	121
Minor Injury F/R	2.22	2.23	2.36	2.61
Estimated Medical Treatment Time Required	1,308 hours	1,328 hours	6,938 hours	7,908 hours

Safety Activities

During the month of May, there were no major injuries reported and the frequency rate for the year to June 1, 1953 is 0.69.

The minor injury trend remained the same for month of May with an increase of only one injury over April, 1953.

Recommended changes and procedures have been submitted to 200-W Area Supervision covering acid handling, eye protection, spray painting, and material storage.

Efforts are being made to secure an approved or suitable typewriter cleaner (other than C.T.C.) in the 1100 Area.

The Blaw-Knox and Kaiser Engineers are now conducting extensive construction activity in the 200-E Area, which requires a certain amount of Operational safety coverage.

Supervision in the various Areas have started setting up a procedure to instruct and inform through regular practice drills, how to get under a shower during emergency.

Recommendations were submitted to Supervision in the 100 Areas covering a correction of a hazardous condition when loading and unloading compressed gas cylinders in the 100-B, -D, and -F Areas.

Recommendations to control the pedestrian and vehicular traffic in and around the Construction activity at the 321 Building had to be submitted to 300 Area Management so that the hazardous conditions caused by Construction activity could be eliminated.

The limerick contest sponsored by the 300 Area Accident Prevention Committee started May 1 and finished May 15. Winners of both contests have been chosen.

Sub-Contractor has completed his contract to addition to Power House, 284-W Bldg. in 200-W Area.

1204038

Restriping of all highways in the industrial highways was completed during May.

Recommendations have been made covering the elimination of the hazard at Spangler Road and Stevens Drive.

The Supervisor of Safety attended the annual conference of the Safety and Fire Prevention Section of the Atomic Energy Commission held at Idaho Falls, and read a paper describing the new full-face all-purpose gas mask and conducted a description of same.

Fire Protection Activities

Fire Protection Surveys were completed of Buildings 182-H and 183-H.

Twenty employees of 100-F Power attended a fire prevention lecture and demonstration.

Eighty bus drivers were given instruction and demonstration of the four-pound chemical fire extinguisher. This type extinguisher has recently been installed in the busses.

A report of fire tests made on the CWS filters was written and distributed to interested parties.

Recommendations for reducing the fire hazard in the 234-5 Building air filtering system were forwarded to the area manager.

The sprinkler systems in 277-S and 277-U were tested.

The Riverland Roundhouse sprinkler system was extended to the lean-to addition. The system was tested and found satisfactory.

The new CO_2 system in the 234-5 Storage Hutment was tested and put into service.

All sprinkler systems in the 300 Area have been tested and all necessary repairs completed.

The powdered metal and liquid metal experiments were reviewed with Technical.

The new Gamewell Fire Alarm panel has been installed in the 300 Area and Boxes No. 14, No. 15 and No. 64 are operating on it.

The new electroplating process was reviewed with the Applied Research Sub-Station.

The prints on the Positive Ion Accelerator Building were checked.

The scoping of the Fuel Element Plant was reviewed.

1204039

OFFICE UNIT

Laundry and Building Services

200-West Laundry	April	May
Pounds Delivered	308,122	225,667
Pounds Rewashed	6,571	4,708
Total Dry Weight	314,693	230,375
Monitoring Section		
Poppy Check - Pieces	185,083	159,622
Scaler Check - Pieces	405,750	286,012
Total Pieces	590,833	445,634
Rewash Pieces	7,027	4,490
700 Area Laundry		
Flatwork - Pounds	46,977	39,896
Rough Dry - Pounds	23,275	21,709
Finished - Pounds	3,349	3,133
Total Weight	73,601	64,738
Estimated Pieces	96,417	84,807

200-West Laundry

The heavy loss of volume in this laundry was due to the completion of the Ball 3X safety installation and Basin repair work in the 100 areas.

This work was completed May 15, 1953 and the laundry operation was cut from a six-day to a five-day schedule. Also, the personnel is being reduced accordingly.

700 Area Laundry

The drop in volume in this laundry was caused by the decrease in demands from the Kadlec Hospital during the past month.

Clerical Services

General

The transfer of responsibility from Clerical Services to Stores Section for Warehousing and Accounting work connected with Office Equipment was accomplished on May 4. This transfer of functions permitted the reduction of one General Clerk "B" from the rolls of Clerical Services.

A new duplicating process known as "Verifax" was demonstrated for Purchasing and has been ordered for installation and operation in Central Duplicating. This process will provide a more economical medium for duplicating 5 or less copies.

Central Mail & Addressograph

Postal and inter-office mail are both slightly lower in volume than last month.

Addressograph work continues to increase in volume. Two new files were added, one for Radiological Sciences and a weekly mileage card showing vehicle locations for Transportation Section.

Types and Pieces of Mail Handled	May	April
Internal	1,573,371	1,636,958
Postal	72,240	87,106
Special	2,019	2,421
Total Mail Handled	1,647,630	1,726,485
Total Postage Used	$2,610.00	$3,344.08
Total Teletypes Handled	3,177	3,654
Total Store Orders Handled	429	340

Addressograph

	May		April	
Type of List	Number of Runs	Total Copies	Number of Runs	Total Copies
Plant Name List	114	198,463	112	196,531
Housing List	16	31,565	5	29,325
Payroll List	9	38,753	9	32,397
Total New Plates	5,320		4,835	
Total Corrected Plates	862		986	
	6,182		5,821	

Office Equipment - Furniture

Two requests for appropriation were issued during the month. One request was approved in the amount of $5,000 to purchase one accounting machine and ten 20 drawer IBM card file cabinets. The other request was in the amount of $3600 for the purchase of one stripping machine and two dictating machines and has not been approved to date.

A.E.C. Property Section has forwarded a copy of its construction office furniture and machine requirements for FY 1954 and 1955. The total value of these requirements is approximately $100,000. Surplus office furniture and machines will be used to meet a portion of these requirements.

1204041

Office Machine Repair

The Office Machine Repair group now has as part of its function the maintenance of all 700, 1100 and 3000 area instrumentation. This became effective May 25, with the transfer of an Instrument Technician and Instrument Trainee from the Manufacturing Department. The instrument shop is now located in 722-D Hut, but will be moved to 722-C as soon as space can be arranged.

Inventory of all office machines in service was started on Monday, May 18, to be completed by June 4. This schedule is currently up to date.

A schedule of monthly rental rates for office machine repair maintenance has been completed. This new rate is tentatively scheduled to begin on July 1, 1953. The rates were established from General Services Administration Maintenance schedules by the Financial Department.

	May	April
Office Machines Repaired in Shop	160	169
Office Machine Service Calls	556	563
Machines Picked Up By Survey	32	34
Total	748	766

Central Printing

Central Printing produced consistent with last month in copies of printed material and list dollar value. This production was delivered at an estimated cost of .0073 per copy. This material involved several phases of operation, including composing, camera and plate making, press running and bindery.

	May	April
Orders Received	384	459
Orders Completed	391	436
Back Log	85	94
Copies Printed	1,488,020	1,488,342
Negatives Masked	873	936
Negatives Processed	1,465	1,252
Photo-copy Prepared	248	399
Litho Plates Processed	960	970

Stenographic Services

Loan requests continued heavy throughout the month, largely for vacation relief. Twenty-three of these requests were filled for a total of 1144 hours.

The work load for the month was not consistent, being very heavy or light during the entire period. Assignments were accepted and work completed for forty-seven different work groups (cost codes).

Stenographic Services was moved into space on the second floor of the fifth wing of the 703 Building on May 29, thus making available approximately 300 sq. ft. of office space to the Landlord for re-assignment, and reducing the rental costs to Steno Services accordingly.

1204042

Breakdown of Hours	May	April
Machine Transcription	38	0
Dictation & Transcription	2	14
Letters	26.5	10
Rough Drafts	42.5	26
Duplimats, Xerography	112.5	188.5
Miscellaneous	492	333
Training Time	322.5	376.5
Meeting Time	7.5	8
Unassigned Time	32	32
Absenteeism	46	1.5
	1121.5	989.5
Employees loaned to other departments	1144.5	1358.5
Total Hours Available	2266	2348

Area Mail and Duplicating

This month it has been possible to discontinue the stationery dispersing function of the 101 Mail and Duplicating Office.

Stocks of supplies which were on hand have been dispersed and all personnel located in the 101 Building were informed of the impending change. Stores items will in the future be ordered direct from Central Stores Warehouse in 3000 Area.

The change will permit further savings in rental, light and heat costs. It is estimated that 140 square feet of floor space can be released for reassignment.

Work loads again increased in Area Mail this month, while orders completed by the various duplicating offices remained at the high level reported for the previous month. Among several priority jobs handled was a large Security Patrol listing of clearances for 234-5 Building, completed by the 2704-Z Duplicating Office. This job required the use of Xerography in addition to offset work, and was completed in approximately ten working hours.

Duplicating & Mail Statistics	May	April
Orders Received	3,154	3,352
Orders Completed	3,097	3,251
Orders On Hand	102	121
Offset Plates	17,689	18,124
Offset Copies	1,221,727	975,219
Stencils	54	678
Stencil Copies	1,275	14,689
Ditto Masters	494	385
Ditto Copies	11,375	14,268
Zerox Plates	1,457	1,388
Total Internal Mail	481,514	380,986

1204043

Records Control

Quantity of records received, processed and stored:

Community Operations & Real Estate Department	2	Standard	Storage	Cartons
Employee & Public Relations Department	15	"	"	"
Engineering Department	46	"	"	"
Financial Department	33	"	"	"
Manufacturing Department	22	"	"	"
Medical Department	36	"	"	"
Plant Auxiliary Operations Department	36	"	"	"
Radiological Sciences Department	12	"	"	"
Total	202	Standard	Storage	Cartons

Persons provided records service:	851	
Records destroyed:	274	Cartons
Records cartons issued:	289	

Percentage of Records Service Center Vault occupied by records is 100% plus excluding Civilian Defense portion.

Twenty-eight requests for file cabinets were received, 12 requests were filled. Thirty-five requests for file cabinets are pending. One fireproof combination locked cabinet was picked up in exchange for a key locked cabinet resulting in a savings of $150. ($225.00 cost of combination cabinet minus $75.00 cost of key locked cabinet equals $150.00 savings per cabinet exchanged.)

Uniform filing was established in two offices during the month, a total of 421 offices have installed the "Uniform Filing System" to date. Fourteen rechecks were made on established filing in offices.

Remington Rand Incorporated, have developed and returned as completed 866 reels or 2,929,532 images to date. The work done under the microfilming contract was completed May 15, 1953.

Five requests for Authorization for Records Disposal were approved by the Atomic Energy Commission. Fourteen Evaluation of Records for disposal were developed and submitted for internal departmental approval.

The Supervisor, Records Control, attended the Atomic Energy Commission - Contractor Records Management Conference in Chicago, April 27th - April 29th. Two papers on Hanford Program were presented.

ADMINISTRATION AREA MAINTENANCE UNIT

Status of Work Progress:

CA-504 Lighting Improvements - 700 Area Buildings: Final design completed May 18, 1953. Project now in hands of Atomic Energy Commission Contacts Group.

-- New Administration Building: No further word received from Atomic Energy Commission as to plans for proceeding with a building of approximately 35,000 square feet.

CA-525 Conversion of Basement, 5th Wing, 703 Building to Civil Defense Auxiliary Program: Atomic Energy Commission is now preparing to call for bids on this project.

-- New Transportation Facilities (AEC): Work progressing on procurement of equipment.

IR-154 Alterations--729 Building: Original IR returned to Atomic Energy Commission with understanding we will plan to convert 744 Building for Radio and Telephone Repair Shop use. Building 729 now in temporary use as carpenter shop and for storage of Hauserman partitions.

-- Alterations 713 Building: Northeast office section occupied; northwest office section ready for occupancy. All preliminary design on remainder of building is complete except for electrical distribution, which is being prepared by Design Section.

IR-150 Electrical and Telephone Outlets--Central Stores Warehouse: Plans progressing for installation of Hauserman partitions in the Receiving Area.

-- 713-A Building: Minor revisions made to permit occupancy by Engineering Assistance Contract personnel and Plant Engineering personnel who are closely associated with assistance contract work.

700 Area Parking Lots were reviewed with Transportation personnel. Arrangements have been made to do necessary resurfacing of these lots in June.

Warehouses 1125-3-4-5-6 and Hutments 1125-12 and 713-C have been vacated and transferred to Atomic Energy Commission for disposition.

Hutments 713-D and 1125-7 were removed during the month.

Atomic Energy Commission has advised that Blaw-Knox is expected to remove Hutments 712-B and 715-A from the Area within the next few days.

Plans are underway to vacate Hutment 712-A and transfer it to Atomic Energy Commission for disposal as soon as adequate conference facilities can be arranged.

General Maintenance

Rest room in 713-A was remodeled, with additional fixtures added to accommodate increased personnel.

Radiators, valves and traps on the heating system in 729 and 716 Buildings were repaired.

Four exhaust fans were installed in 703 inside offices for increased ventilation.

Several electrical outlets were installed in 713-A.

Outlets and lighting were revised in 713 office space to accommodate new personnel.

Made three stems and refaced the gates in twelve large valves. Rebuilt pump impeller and fabricated set of bushings for Johnson right-angle drive for Community water system. Twenty-four adapter rings were made for oil furnace motors.

1204045

Twelve new light fixtures were installed in 1125.

Forty Kardex files were repaired and repainted; fifteen drafting table tops were resealed.

Only fifty-six hours were expended in preparing excess material for shipment.

New Hauserman partition stock was moved to 729, along with 700 Area Carpenter shop. Built bins and shelving for small Hauserman parts.

A limited number of partitions were rearranged and installed to accommodate office personnel.

Various roofs were repaired, following recent rain and wind.

Interior of 701-B was repainted.

Road striping equipment was busy all but two days on Area Roads.

Repainted 10' x 20' roadside signs for Security.

The following used desert coolers were installed:

Three on warehouses in Stores Yard No. 2
Two on 1131 Area hutments
One in west attic of 713-A

New copper-tube evaporator units were installed to replace iron-tube units in two walk-in food boxes at Kadlec Hospital kitchen.

The kitchen exhaust hood at Hospital was relocated and new coffee urns installed.

Cold water lines in Hospital are being revised to provide soft water to only those locations requiring it. Cooling systems, refrigeration and rest rooms will be returned to raw water service. This will greatly reduce soft water usage in the building. All hot water will remain on soft water supply. Work is 60% complete.

Floor linoleum was replaced with Vinyl tile in the lobby of Hospital.

Touch-up painting was done in hospital halls, dining room and a few rooms.

Steam Operation

Boilers 1 and 2 were in service for the entire month, with No. 3 in reserve and No. 4 being repaired.

At the request of Cost, an earlier cut-off date for monthly reports dealing with steam and soft water distribution and consumption of essential materials was adopted this month. Henceforth, the last five days of each calendar month will be carried over to the succeeding month. This change results in a 26-day reporting period for May.

Because of unseasonably cooler weather during the period May 1 to 26, the average steaming rate was 25.4% greater than for the calendar month of May 1952.

Soft water usage at Kadlec Hospital increased to an average of approximately 50,900 gallons per day.

At the request of Transportation Section, the heating operation at 1131 Area was closed down for the summer on May 17 and Miscellaneous Operators were transferred to Manufacturing and Community Operations & Real Estate Department.

Operation of Central Stores Heating Plant was closed down on May 15 and the remaining Miscellaneous Operators transferred to Community Operations and Real Estate Department.

One load of fuel oil (approximately 5,000 gallons) was received on May 9, leaving the tank as full as possible for the seasonal shut-down period.

Coal consumed: 860.30 Net Tons

Steam Generated	12,973.2 M/lbs.
Steam Leaving Plant	11,027.2 M/lbs.
Steam Delivered	9,186.4 M/lbs.
Total Water Softened	2,908,500 gallons
Total Soft Water Sent to Kadlec Hospital	1,323,930 gallons
Total Soft Water Sent to 784 Heating Plant	1,584,570 gallons
Soft water served to Kadlec Hospital:	624 hours

SECURITY AND PATROL

Document Report

Classified documents unaccounted for as of May 1, 1953: (155 of the above 358 documents are chargeable to the du Pont Company)	358
Number of classified documents reported as unaccounted for during May:	0
Number of classified documents recovered during May: (One of the above eight documents is chargeable to the du Pont Company)	8
Number of classified documents remaining unaccounted for as of June 1: (154 of the above 350 documents are chargeable to the du Pont Company)	350

The Non-Technical Document Review Board held three meetings during the month and reviewed a total of 125 classified documents. Of this number -

11 were downgraded to "Restricted",
1 was downgraded to "Offician Use Only",
11 had their classification retained and
102 were declassified.

Security Education

Four security items appeared in the Works NEWS during the month.

1204047

There were 361 security meetings held and attended by 4,812 employees of the General Electric Company. A representative of the Security and Patrol Unit showed one of the security films at some of these meetings as shown below:

"Signal 99" was shown at 18 meetings, each with an average attendance of twenty-one people.

"The Defense Rests" was shown at three meetings, each with an average attendance of twenty-nine employees, or a total attendance of 87 people.

"Only The River" was shown at five meetings, each with an average attendance of fifteen people.

"The Case of the Smokeless Chimney" was shown at one meeting with twenty-four people present.

"The Man on the Left" was shown at one meeting with sixteen employees present.

"Sabotage" was shown at one meeting also with ten people in attendance.

"On Guard" was shown at two meetings, with seventeen employees present at each meeting.

GE Security Bulletin No. 75 entitled "How Strong is the String" was distributed on May 18, 1953.

The following security posters were distributed and then posted during the month of May:

450 copies of the large wall type poster with the slogan "Protect Your Job".

200 copies of the bus-size poster were posted in the plant busses each bearing the slogan "Protect Your Job."

Revisions were issued concerning security instructions on the following Organization and Policy Guides:

15.5 "Procedure for Top Secret Clearance" on May 8, showing the changes of category concerning the 234-5 facility.

15.27 "Hanford Atomic Products Operation Area Clearance for Personnel" was issued May 13, which showed the changes necessary for clearing personnel into the 234-5 facilities.

A series of meetings was held during the month of May 1953 with personnel concerned in which the proposed Atomic Energy Commission General Classification Guide was reviewed. Comments, criticisms and suggestions were compiled and a formal reply will be submitted to the Atomic Energy Commission on June 5, 1953.

Nineteen employees of the General Electric Company received a "Q" security orientation talk from either a representative of the Security Unit or an Area Patrol Captain during the month of May.

"General Blackout and Plant Defense Procedures for the 300,3000 and Richland Areas" were issued May 15, 1953.

Statistical Report of Security Patrol Activities

	100-B	100-D	100-F	100-H	200-E	200-W	300
Pat Searches	90	87	49	66	1	174	2
Escorts	9	8	3	36	17	49	63
Ambulance runs	3	2	1	1	0	7	6
Passes issued:							
One day temporary	66	0	9	0	3	46	83
Travel	3	0	0	0	0	0	69
Red Tag	109	148	36	76	148	439	230
Telephonic	10	5	0	0	0	0	7
Supervisors post contacts	604	387	516	322	454	808	798
							300 & 700
Security File Check (Hours)	142	196	304.5	347¼	113	148.5	1,426
Security Building Check (Hours)	200	36				148.5	744

Other Security Patrol Activities:

Buildings and Doors Opened:	262
Railroad Gates Opened:	210
Master System Keys issued:	26
Operation Gas Pumps	214

Arrest Report:

Violation	Number of Violations	Cont. Cases from April	Cases Cleared	Pending	Fined
Speeding	3	0	3	0	3
Negligent Driving	2	0	2	0	2
Improper passing and speeding	1	0	0	1	0
	6	0	5	1	5

Citation Tickest Issued: 6

Patrol Training Activities

Security Patrolmen attending firearms training during the month of May: 218
Security Patrolmen receiving classroom instruction during the month: 193

Training courses received were as follows:

Safety Class	1/2 hour
Security Class	1/2 hour
Operations Class	1 hour
Firing of .38 cal. revolver	1/2 hour

1204049

Security Patrol Post Changes

An additional night post was established in the 2101-E Building, 200-E Area, during the month. The post was formerly operated only on the day shift, but it is now operated around-the-clock, and three additional men are required.

The 234-5 Building Rover post was added in the 200-W Area inside the 234-5 Building on May 5 due to the consolidation of the 234 and 235 sections of the building.

On May 5, due to consolidation of the 234-5 Building, there was the elimination of two inner security kardex identification posts at corridor 5 and 6 and Room 205 inside the 234-5 Building, 200-W Area.

Field Inspection Activities

Contacts made to locate unaccounted for documents:	34
Searches conducted to locate unaccounted for documents:	13
File combinations changed:	11

General

As of May 29, 5,177 supplemental Personnel Security Questionnaire forms were complated by plant personnel and forwarded to the Atomic Energy Commission Security Office. This leaves a balance of 49 who were on the roll as of January 1, 1950 outstanding, of which sixteen are employees who are on official leave.

As of the close of this reporting period, 2,008 employees, including Atomic Energy Commission personnel, have been rephotographed. This necessitated the preparation, distribution and exchange of the following credentials:

2,008	"Q" Photo Identification Passes
2,164	"A" type area badges
10,558	"B" type area badges

Security Administration

Daily Badge Log Entries	2,039 additions and 212 withdrawals
"Q" clearance issued	67
Formal "P" clearances issued	20
"P" Approval clearances issued:	26
Category Access granted	63
Category Access withdrawn	14

1204050

[redacted]

HANFORD ATOMIC PRODUCTS OPERATION
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING MAY 31, 1953

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass. Areas
ENGINEERING DEPARTMENT - TECHNICAL SECTION						
I. Visitors to this Works						
E. C. Anderson Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-20-53	5-12-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
D. S. Billington Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss experimental problems	L. P. Bupp L. D. Turner R. Ward	5-12-53	5-16-53	X	300 XXX 700
H. J. Bowman Trent Tube Company East Troy, Wisconsin	Discuss welding techniques	W.K. Alexander J. W. Lingafelter W. L. Schalliol	5-18-53	5-19-53	X	300 303
R. B. Clendineng Bristol Instrument Company San Francisco, California	Inspect-faulty equipment installed in 300 and in 105-C	J. W. Underwood E. S. Day	5-1-53 5-26-53	5-1-53 6-6-53	 X	X 300 XXX 100-B 105-C
C. L. Cowan, Jr. Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-25-53	5-12-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
W. S. Dunning Amercoat Corporation Seattle, Washington	Discuss protective coatings	F. G. Wittenbrock	5-20-53	5-21-53		X 300 XXX
T. F. Fisher Knolls Atomic Power Lab. Schenectady, New York	Mock-up Test of KAPL-108 irradiation	J. A. Berberet	5-22-53	5-29-53	X	100-D 105-D 100-H 105 300 XXX 700

[redacted]

DECLASSIFIED

1203051

Ja-15

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass. Areas
P. A. Frank General Electric Company Schenectady, New York	Review patent matters and procedures and discuss patents and inventions	W. I. Patnode J. W. Underwood G. C. Butler (Legal Dept.)	5-19-53	5-20-53	X	300-L XXX
C. W. George General Engineering Lab. Schenectady, New York	Consultation on magnetic ball conveyor (W-31-109-Eng.-52) and fuel element development program	G. E. McCullough	5-12-53	5-15-53	X	100-D 105, 189 100-B 105-B, 105-C, 108-B 300 XXX 700 ; 100-H XXX
A. T. Gresky Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss dissolving techniques and associated problems	F. W. Woodfield	5-14-53	5-15-53	X	200-E 201-C 200-W Redox, 221-U 300 XXX
F. B. Harrison Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-25-53	5-15-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
F. N. Hayes Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-15-53	5-15-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
G. H. Hupman General Engineering Lab. Schenectady, New York	Consultation on magnetic ball conveyor (W-31-109-Eng.-52) and fuel element development program	G. E. McCullough	5-12-53	5-15-53	X	100-D 105, 189 100-B 105-B, 105-C, 108-B 300 XXX 700 ; 100-H XXX
Z. Jeffries General Electric Consultant Pittsfield, Massachusetts	Consultation in conjunction with Agreement	A. B. Greninger W. K. Woods	5-11-53	5-15-53	X	300 303 700
C. W. Johnstone Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	4-9-53	5-12-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
J. E. Kemme Argonne National Laboratory Chicago, Illinois	Assist in decontamination of ANL-140 equipment	J. A. Berberet	5-2-53	5-15-53	X	100-H 105 300 XXX 700

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass. Areas
J. L. Matrone General Engineering Lab. Schenectady, New York	Consultation on magnetic ball conveyor (W-31-109-Eng.-52) and fuel element development program	G. E. McCullough	5-12-53	5-15-53	X	100-D 105, 189 100-B 105-B, 105-C, 108-B 300 XXX 700
J. W. Moyer Knolls Atomic Power Lab. Schenectady, New York	Consultation on irradiations on KAPL-109	J. A. Berberet	5-7-53	5-9-53	X	100-F 105 100-H 105 300 XXX 700
C. G. Munger Amercoat Corporation Seattle, Washington	Discuss protective coatings	N. G. Wittenbrock	5-20-53	5-21-53		X 300 XXX
E. O. Nurmi Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss dissolving techniques and associated problems	F. W. Woodfield	5-14-53	5-15-53	X	200-E 201-C 200-W Redox, 221-U 300 XXX
F. Reines Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-25-53	5-12-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
R. L. Schuch Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-15-53	5-12-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
H. T. Sumsion Knolls Atomic Power Lab. Schenectady, New York	Consultation on Hanford fuel element development program	E. A. Eschbach	5-18-53	5-21-53	X	100-B 105-B, 108-B, 300-L 303 105-C 700
M. P. Warren Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	2-25-53	5-12-53	X	100-B 105-B, 105-C 100-H XXX 300 XXX
D. W. White Knolls Atomic Power Lab. Schenectady, New York	Consultation on Hanford fuel element development program	E. A. Eschbach	5-18-53	5-20-53	X	300-L 303 700

Ja-17

[redacted]

DECLASSIFIED

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
T. J. White Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	3-26-53	5-12-53	X	100-B 100-H 300	105-B, 105-C XXX XXX
J. G. Winston Los Alamos Scientific Lab. Los Alamos, New Mexico	Work on neutrino program	J. A. Berberet	4-13-53	5-12-53	X	100-B 100-H 300	105-B, 105-C XXX XXX
D. M. Wroughton Westinghouse Atomic Power Pittsburgh, Pennsylvania	Operation of ANL-140 loop and irradiation tests on poison solutions	J. A. Berberet	5-8-53	5-8-53	X	300 700	XXX
II. Visits to other Installations							
F. W. Albaugh to: Knolls Atomic Power Lab. Schenectady, New York	Discuss reactor, metallurgy and separations programs	K. H. Kingdon J. Marsden	5-25-53	5-27-53	X		
M. Altman to: Brookhaven National Lab. Upton, Long Island, New York	Heat transfer aspects of new reactors	O. H. Dwyer	4-27-53	5-10-53	X		
M. Altman to: Knolls Atomic Power Lab. Schenectady, New York	Heat transfer aspects of new reactors	T. Trocky	5-1-53	5-10-53	X		
M. Altman to: Columbia University New York, New York	Heat transfer and corrosion discussions	A. J. Bendler	5-4-53	5-4-53	X		
J. M. Atwood to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Present paper at AEC Corrosion Information Symposium and observe boiler reactor	- - J. T. Weber D. K. Froman	5-20-53 5-22-53	5-21-53 5-22-53	X X		
L. R. Boyd to: Knolls Atomic Power Lab. Schenectady, New York	Personnel interview and inspection of laboratory facilities	J. Leslie	5-26-53	5-28-53	X		

Ja-18

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
W. L. Bunch to: Brookhaven National Lab. Upton, Long Island, New York	Attend AEC Shielding information meeting	M. Fox	5-14-53	5-15-53	X		
L. L. Burger to: Argonne National Lab. Chicago, Illinois	Discuss physical chemistry and cobalt-60 source	H. L. Hull S. Lawroski	5-4-53	5-7-53	X		
J. J. Cadwell to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Attend corrosion symposium on metallurgy problems and observe Beta 12 and 13	J. T. Waber S. Coffinberry	5-20-53	5-22-53	X		
R. S. Dalrymple to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Attend corrosion symposium on metallurgy problems	J. T. Waber S. Coffinberry	5-20-53	5-22-53	X		
E. A. Eschbach to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on fuel element development program	J. E. Burke C. E. Lacy D. W. White	4-1-53	10-1-53	X		
E. A. Eschbach to: Battelle Memorial Inst. Cincinnati, Ohio	Consultation on fuel element development program	H. R. Nelson	4-1-53	10-1-53	X		
E. A. Eschbach to: Ames Laboratory Ames, Iowa	Consultation on fuel element development program	F. H. Spedding H. A. Wilhelm	4-1-53	10-1-53	X		
E. A. Eschbach to: Sylvania Electric Products New York, New York	Consultation on fuel element development program	H. H. Hausner	4-1-53	10-1-53	X		
J. E. Faulkner to: Knolls Atomic Power Lab. Schenectady, New York	Discuss measurements of pile contents	J. B. Sampson	5-4-53	5-5-53	X		
G. C. Fullmer to: Brookhaven National Lab. Upton, Long Island, New York	AEC Shielding information	M. Fox	5-14-53	5-15-53	X		

DECLASSIFIED

Ja-19

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
G. C. Fullmer to: Knolls Atomic Power Lab. Schenectady, New York	Discuss pile reactivity study	J. B. Sampson	5-18-53	5-19-53	X		
G. C. Fullmer to: West Milton Site Knolls Atomic Power Lab. Schenectady, New York	Discuss pile reactivity study	M. Davis J. A. Hagen	5-18-53	5-19-53	X		
S. Goldsmith Los Alsmos Scientific Lab. Los Alamos, New Mexico	Present paper on effects of irradiation on aluminum corrosion at Corrosion Symposium	J. E. Draley	5-19-53	5-22-53	X		
O. H. Greager to: Knolls Atomic Power Lab. Schenectady, New York	Discuss assistance to Hanford programs	K. H. Kingdon	5-4-53	5-5-53	X		
O. H. Greager to: U. S. Atomic Energy Comm. E. I. du Pont de Nemours & Co. Wilmington, Delaware	Discuss Hanford problems	L. Squires	5-6-53	5-6-53	X		
O. H. Greager to: E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Discuss Savannah River Plant problems	M. H. Wahl	5-7-53	5-8-53	X		
W. C. Houck to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Present paper at AEC Corrosion information symposium and observe boiler reactor	- - J. T. Weber D. K. Froman	5-20-53 5-22-53	5-21-53 5-22-53	X X		
W. T. Kattner to: Simonds Saw & Steel Lockport, New York	Observe metal fabrication	A. D. Potts C. H. Emery	6-18-52	6-30-53	X		
W. T. Kattner to: Feed Materials Production Center Fernald, Ohio	Consultation on metallurgy of uranium	J. Cibojski	8-1-52	6-30-53	X		

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
W. T. Kattner to: Argonne National Lab. Chicago, Illinois	Metallurgical consultation	F. G. Foote	9-1-53	6-30-53	X		
W. T. Kattner to: Aircraft Nuclear Propulsion Project Lockland, Ohio	Metallurgical consultation	J. S. Parker	10-7-52	6-30-53	X		
W. T. Kattner to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Discuss and observe uranium quality and fabrication	C. H. Harrington	5-10-53	12-31-53	X		
M. C. Lambert to: Knolls Atomic Power Lab. Schenectady, New York	Discuss X-ray photometer and analytical methods	B. F. Rider	5-11-53	5-13-53	X		
G. E. McCullough to: Argonne National Lab. Chicago, Illinois	Discuss fuel element development program	W. J. McGonnagle	5-5-53	5-6-53	X		
H. L. Mars to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on fuel element and sub-marine intermediate reactor	R. E. Davison	5-4-53	5-8-53	X		
P. J. Pankaskie to: Ames Laboratory Ames, Iowa	Consultation on uranium metallurgy	F. H. Spedding	5-18-53	5-19-53	X		
P. J. Pankaskie to: Battelle Memorial Inst. Cincinnati, Ohio	Consultation on uranium metallurgy	H. R. Nelson	5-20-53	5-21-53	X		
P. J. Pankaskie to: Sylvania Electric Products Pittsburgh, Pennsylvania	Consultation on uranium metallurgy	H. H. Hausner	5-22-53	5-22-53	X		

[redacted]

DECLASSIFIED

1-2-54-51

Ja-21

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
P. J. Pankaskie to: Bridgeport Brass Co. Bridgeport, Connecticut	Consultation on uranium metallurgy	R. M. Treco	5-25-53	5-25-53	X		
P. J. Pankaskie to: Mass. Inst. Technology Cambridge, Massachusetts	Consultation on uranium metallurgy	A. R. Kauffman	5-26-53	5-26-53	X		
P. J. Pankaskie to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on uranium metallurgy	J. E. Burke	5-27-53	5-28-53	X		
J. W. Riches to: Ames Laboratory Ames, Iowa	Consultation on uranium metallurgy	F. H. Spedding	5-18-53	5-19-53	X		
J. W. Riches to: Battelle Memorial Inst. Cincinnati, Ohio	Consultation on uranium metallurgy	H. R. Nelson	5-20-53	5-21-53	X		
J. W. Riches to: Sylvania Electric Products Pittsburgh, Pennsylvania	Consultation on uranium metallurgy	H. H. Hausner	5-22-53	5-22-53	X		
J. W. Riches to: Bridgeport Brass Co. Bridgeport, Connecticut	Consultation on uranium metallurgy	R. M. Treco	5-25-53	5-25-53	X		
J. W. Riches to: Mass. Inst. Technology Cambridge, Massachusetts	Consultation on uranium metallurgy	A. R. Kauffman	5-26-53	5-26-53	X		
J. W. Riches to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on uranium metallurgy	J. E. Burke	5-27-53	5-28-53	X		
J. M. Roberts to: Argonne National Lab. Chicago, Illinois	Discuss mechanical development problems	J. M. West	5-7-53	5-7-53	X		

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
G. J. Rogers to: Argonne National Lab. Chicago, Illinois	Discuss design of laboratory equipment	K. A. Blomgren L. S. Markheim J. R. Farmakes	5-4-53	5-6-53	X		
A. E. Smith to: Dow Chemical Company Rocky Flats Laboratory Denver, Colorado	Process consultation and final inspection consultation	E. J. Walko I. B. Venable	5-11-53	5-22-53	X		
A. E. Smith to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Process consultation and final inspection consultation	G. H. Tenney R. D. Baker W. W. Carter	5-11-53	5-22-53	X		
A. E. Smith to: Ames Laboratory Ames, Iowa	Consultation on equipment related to 234-5 Building, Task II	H. A. Wilhelm	5-12-53	5-14-53	X		
D. F. Snoeberger to: Brookhaven National Lab. Upton, Long Island, New York	Heat transfer aspects of new reactors	O. H. Dwyer	4-27-53	5-10-53	X		
D. F. Snoeberger to: Knolls Atomic Power Lab. Schenectady, New York	Heat transfer aspects of new reactors	T. Trocky	5-1-53	5-10-53	X		
D. F. Snoeberger to: Columbia University New York, New York	Heat transfer and corrosion discussion	A. J. Bendler	5-4-53	5-4-53	X		
W. H. Swift to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss separations equipment	F. L. Steahley	5-1-53	5-1-53	X		
R. G. Wheeler to: Sylvania Electric Products Pittsburgh, Pennsylvania	Present paper on metallography	H. Woods	5-6-53	5-8-53	X		
E. C. Wood to: Argonne National Lab. Chicago, Illinois	Discuss fuel element development program	W. J. McGonnagle	5-5-53	5-6-53	X		

[redacted]

DECLASSIFIED

Ja-23

DECLASSIFIED [redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
E. C. Wood to: Battelle Memorial Inst. Cincinnati, Ohio	Discuss fuel element development program	S. A. Wenk	5-6-53	5-6-53	X		
E. C. Wood to: National Lead Company Feed Materials Production Center Fernald, Ohio	Discuss fuel element development program	J. Cibojski	5-6-53	5-6-53	X		
E. C. Wood to: E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Discuss fuel element development program	M. MacKeehan	5-7-53	5-8-53	X		
H. R. Gardner to: Feed Materials Production Center Fernald, Ohio	Observe processing of uranium	J. Cibojski	5-18-53	6-8-53	X		
ENGINEERING DEPARTMENT - DESIGN SECTION							
I. Visitors to this Works							
V. Miller Barrett and Yost Seattle, Washington	Instruction in proper method of running Pur-O-Cel filter equipment	V. D. Nixon	5-12-53	5-15-53		X	100-D XXX
II. Visits to other Installations							
J. M. Fox, Jr. to: Aircraft Nuclear Propulsion Project General Electric Company Lockland, Ohio	Discuss metallurgy relative to that Project	A. E. Focke	5-11-53	5-12-53	X		
J. M. Fox, Jr. to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Discuss stainless corrosion by UNH	W. M. Leaders	5-13-53	5-13-53	X		
W. L. Pearl to: Charles T. Main, Inc. Boston, Massachusetts	Confer on sodium dichromate, caustic soda and sanitary water systems for 100-K Area	A. Curtis	5-12-53	5-15-53	X		

[redacted]

1220810

Ja-24

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
C. W. Sege to: Brookhaven National Lab. Upton, Long Island, New York	Attend shielding information meeting	M. Fox	5-13-53	5-15-53	X		
ENGINEERING DEPARTMENT - PROJECT SECTION							
I. Visitors to this Works							
E. J. Antal Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	6 months		X	700-760
W. P. Bosworth Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-21-53	6 months		X	700-760
D. G. Cooper Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	6 months		X	700-760
E. Davis Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	6 months		X	700-760
W. M. Duffy Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-19-53	6 months		X	700-760
H. L. Foretay Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	6 months		X	700-760
C. A. Formsack Puget Sound Navy Shipyard Bremerton, Washington	Consultation on material from Shipyard	J. C. Hamilton	5-14-53	5-14-53	X	300	303
W. A. Holt Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-19-53	6 months		X	700-760

1290951

Ja-25

[redacted]

DECLASSIFIED

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
C. W. George General Engineering Lab. Schenectady, New York	Underwater examination facility equipment	H. P. Shaw	5-13-53	5-13-53	X		100-H XXX
G. H. Hupman General Engineering Lab. Schenectady, New York	Underwater examination facility equipment	H. P. Shaw	5-13-53	5-13-53	X		100-H XXX
P. F. Illes Frank Mayer Engineering Co. Los Angeles, California	Design of various project at Plant-Special Agreement G-27	G. H. Hill	5-18-53	Six months		X	700-760
R. H. LaFontaine Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-11-53	Six months		X	700-760
G. W. Marsh Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-20-53	Six months		X	700-760
L. A. Melcher Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-21-53	Six months		X	700-760
H. J. Rutan Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-20-53	Six months		X	700-760
F. A. Salisbury North American Aviation Co. Downey, California	Observe graphite machining facilities	J. R. Kelly	5-25-53	5-25-53	X		101-Hanford 200-E 2101 700
W. Uffelman Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	Six months		X	700-760
E. J. Williams Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	Six months		X	700-760

2-28-53

Ja-26

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
K. K. Yap Frank Mayer Engineering Co. Los Angeles, California	Design of various projects at Plant-Special Agreement G-27	G. H. Hill	5-18-53	Six months		X	700-760
II. Visits to other Installations							
H. E. Hanthorn to: Vitro Corporation of America New York, New York	Design liaison on Project CA-535	J. C. Tourek	5-18-53	5-19-53	X		
J. M. Heffner to: U. S. Atomic Energy Comm. Idaho Falls, Idaho	Attend annual safety and fire protection conference	- -	5-26-53	5-29-53		X	
H. H. Hubble to: Vitro Corporation of America New York, New York	Engineering consultation	J. C. Tourek	5-18-53	5-29-53	X		
H. G. Johnson to: Vitro Corporation of America New York, New Hork	Engineering consultation	J. C. Tourek	5-18-53	5-29-53	X		
D. D. Lanning to: Vitro Corporation of America New York, New York	Engineering consultation	J. C. Tourek	5-18-53	5-29-53	X		
J. S. McMahon to: Oak Ridge National Lab. Oak Ridge, Tennessee	Inspection and consultation	I. L. Lind	5-11-53	5-11-53	X		
J. S. McMahon to: E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Inspection and consultation	J. D. Ellett R. C. Stanton	5-12-53	5-12-53	X		
J. S. McMahon to: General Electric Co. Schenectady, New York	Inspection and consultation	B. R. Prentice	5-14-53	5-15-53	X		

Ja-27

[redacted]

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
J. S. McMahon to: Knolls Atomic Power Lab. Schenectady, New York	Inspection and consultation	K. H. Kingdon	5-14-53	5-15-53	X		
M. L. Oldfather to: Vitro Corporation of America New York, New York	Engineering consultation	J. C..Tourek	5-18-53	5-29-53	X		
G. G. Taylor to: U. S. Atomic Energy Comm. Idaho Falls, Idaho	Attend annual safety and fire protection conference	- -	5-26-53	5-29-53		X	
B. D. Wilson to: Vitro Corporation of America New York, New York	Design liaison on Project CA-535	J..C. Tourek	5-18-53	5-19-53	X		
FINANCIAL DEPARTMENT							
I. Visits to other Installations							
K. G. Grimm to: Aircraft Nuclear Propulsion Project General Electric Company Lockland, Ohio	Discussions relative to contract matters	R. E. Van Ausdal	5-4-53	5-5-53	X		
EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT							
I. Visitors to this Works							
J. E. Enke Westinghouse Electric Corp. Idaho Falls, Idaho	Industrial relations problems	J. J. Tagen	5-22-53	5-22-53		X	
T. Nahow Knolls Atomic Power Lab. Schenectady, New York	Obtain information on education and training	H. E. Callahan J. A. Wood D. W. McLenegan	5-25-53	5-29-53		X	
C. O. Reiser University of Idaho Moscow, Idaho	Examine Linton Lang regarding his thesis	D. W. McLenegan J. A. Ayres P. H. Reinker	5-14-53	5-14-53	X		

[redacted]

NOV 27 1953

Ja-28

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
W. H. Cone University of Idaho Moscow, Idaho	Examine Linton Lang regarding his thesis	D. W. McLenegan J. A. Ayres P. H. Reinker	5-14-53	5-14-53	X		
MANUFACTURING DEPARTMENT							
I. Visitors to this Works							
R. D. Caldwell E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Health physics training	A. R. Keene	4-12-53	5-22-53	X		100-B 108, 105-B, 105-C 100-D 105, 189 100-F 105 100-H 105 200-E 201-C 200-W Redox, 221-T, 231, 234, 235 300 303
J. E. Johnson E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Health physics training	A. R. Keene	4-12-53	5-22-53	X		100-B 108, 105-B, 105-C 100-D 105,189 100-F 105 100-H 105 200-E 201-C 200-W Redox, 221-T, 231, 234, 235 300 303
G. E. C. Kauffman E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Health physics training	A. R. Keene	4-12-53	5-22-53	X		100-B 108, 105-B, 105-C 100-D 105, 189 100-F 105 100-H 105 200-E 201-C 200-W Redox, 221-T, 231, 234, 235
E. C. Laing E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Discuss canning methods	E. W. O'Rorke	4-27-53	5-1-53	X		300 303

[redacted]

Ja-29

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
J. C. McMillan E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Health physics training	A. R. Keene P. C. Jerman L. I. Cobb J. G. Myers	4-12-53	5-22-53	X		100-B 108, 105-B, 105-C 100-D 105, 189 100-F 105 100-H 105 200-E 201-C 200-W Redox, 221-T, 231 300 303
W.L. Marter E. I. du Pont de Nemours & Co. Savannah River Plant Aiken, South Carolina	Health physics training	A. R. Keene	4-12-53	5-22-53	X		100-B 108, 105-B, 105-C 100-D 105, 189 100-F 105 100-H 105 200-E 201-C 200-W 221-T, Redox, 231 300 303
J. R. Whitman International Business Machines Richland, Washington	Service IBM equipment	E. T. O'Sullivan	5-19-53 5-27-53	5-20-53 5-27-53		X X	100-D 105-D 100-H 105
F. J. Wieczorek Knolls Atomic Power Lab. Schenectady, New York	Discussions on analytical procedures and remote control methods	L. M. Knights D. F. Shepherd M. LeBoeuf	5-27-53	5-29-53	X		200-W Redox 300 XXX
II. Visits to other Installations							
L. T. Hagie to: Aluminum Company of America New Kensington, Pennsylvania	Discuss AlSi problems	L. M. Miller	5-26-53	5-26-53	X		
E. P. Lee to: Oak Ridge National Lab. Oak Ridge, Tennessee	Inspection and consultation	I. L. Lind	5-11-53	5-11-53	X		
E. P. Lee to: E. I. du Pont de Nemours & Co. Savannah River Plant Aiken South Carolina	Inspection and consultation	J. D. Ellett R. C. Stanton	5-12-53	5-12-53	X		

[redacted]

2-3-54

Ja-30

DECLASSIFIED

1236571

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
E. P. Lee to: General Electric Co. Schenectady, New York	Inspection and consultation	B. R. Prentice	5-14-53	5-15-53	X		
E. P. Lee to: Knolls Atomic Power Lab. Schenectady, New York	Inspection and consultation	K. H. Kingdon	5-14-53	5-15-53	X		
RADIOLOGICAL SCIENCES DEPARTMENT							
I. Visitors to this Works							
M. Wilhelmsen Idaho Falls Operation Idaho Falls, Idaho	Consultation on health physics	P. L. Eisenacher	5-13-53	5-15-53	X		
R. E. Zirkle University of Chicago Chicago, Illinois	Consult on radiobiology and give lectures	H. M. Parker	5-25-53	5-30-53	X	100-F 108-F 300-L XXX	
F. A. Statzula U. S. Atomic Energy Commission Idaho Falls, Idaho	Learn radiation monitoring techniques	H. M. Parker L. V. Zuerner W. A. McAdams A. J. Stevens H. A. Meloeny	5-5-53	5-8-53	X	100-F 108 200-W 222-S 300 303 700 703	
II. Visits to other Installations							
J. J. Fuquay to: Las Vegas, Nevada	Participate in Test Program 27	K. H. Larson	3-13-53	5-10-53	X		
J. W. Healy to: Oak Ridge National Lab. Oak Ridge, Tennessee	Health physics meeting and quarterly bio-medical director's meeting	J. C. Bugher, AEC Wash. C. S. Shoup K. Z. Morgan	5-27-53	5-29-53	X		
J. F. Honstead to: Las Vegas, Nevada	Participate in Test Program 27	K. H. Larson	3-13-53	5-10-53	X		
H. A. Kornberg to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend bio-medical director's meeting and inspect facilities	A. Hollaender	5-28-53	5-29-53	X		

Ja-31

OFFICIAL USE ONLY

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
H. G. Ruppert to: Las Vegas, Nevada	Participate in Test Program 27	K. H. Larson	3-13-53	5-10-53	X		
PLANT AUXILIARY OPERATIONS DEPARTMENT - PLANT PROTECTION SECTION							
I. Visits to other Installations							
H. P. Jones to: U. S. Atomic Energy Comm. Idaho Falls, Idaho	Annual conference on AEC and contractor Safety and Fire representatives	- -	5-25-53	5-28-53		X	
PLANT AUXILIARY OPERATIONS DEPARTMENT - PURCHASING AND STORES SECTION							
I. Visitors to this Works							
B. D. Stanley Liquid Carbonic Corporation Seattle, Washington	Deliver liquid carbon dioxide on order HW-29799	J. L. Goodrich	5-7-53	5-7-53		X	100-D 105-D
	Deliver liquid carbon dioxide on order HW-29799	J. L. Goodrich	5-11-53	5-11-53		X	100-B 105-B
	Deliver liquid carbon dioxide on order HW-29799	J. L. Goodrich	5-18-53	5-18-53		X	100-B 105-B
	Deliver liquid carbon dioxide on order HW-29799	J. L. Goodrich	5-20-53	5-20-53		X	100-F 105
J. L. Verschueren Liquid Carbonic Corporation Seattle, Washington	Deliver liquid carbon dioxide on order HW-29799	J. L. Goodrich	5-25-53	5-25-53		X	100-B 105-B
	Deliver liquid carbon dioxide on order HW-29799	J. L. Goodrich	5-27-53	5-27-53		X	100-D 105
F. Beasley West Coast Fast Freight Kennewick, Washington	Deliver material on order	H. L. Morgan	5-5-53	5-5-53		X	300 321
E. A. Janes Consolidated Freightways Kennewick, Washington	Deliver material on order HW 31138	H. L. Morgan	5-5-53	5-5-53		X	100-D 190-D
	Deliver material on order HW 31138 (sodium dichromate)	H. L. Morgan	5-5-53	5-5-53		X	100-H 190-H
	Deliver material on order HW 31138 (sodium dichromate)	H. L. Morgan	5-6-53	5-6-53		X	200-E 275-E

DECLASSIFIED

2-28-95

Ja-32

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
G. J. Martell Consolidated Freightways Kennewick, Washington	Deliver material on order (sodium dichromate)	H. L. Morgan	5-5-53	5-5-53		X	100-B 190
F. Colbert United Truck Lines Kennewick, Washington	Deliver material on order	H. L. Morgan	5-7-53	5-7-53		X	300 321
	Deliver material on order	H. L. Morgan	5-11-53	5-11-53		X	300 321
	Deliver material on order	H. L. Morgan	5-22-53	5-22-53		X	300 XXX
	Deliver material on order	H. L. Morgan	5-25-53	5-25-53		X	100-F 189
	Deliver material on order	H. L. Morgan	5-26-53	5-26-53		X	100-B XXX
	Deliver material on order	H. L. Morgan	5-28-53	5-28-53		X	100-B 190-B
W. McEachern Inland Motor Freight Kennewick, Washington	Deliver material on order	H. L. Morgan	5-11-53	5-11-53		X	300 XXX
D. G. Eikenberry Inland Motor Freight Kennewick, Washington	Deliver material on order	H. L. Morgan	5-18-53	5-18-53		X	100-D 189
	Deliver material on order	H. L. Morgan	5-21-53	5-21-53		X	100-D 189
A. Harrington Inland Motor Freight Kennewick, Washington	Deliver material on order	H. L. Morgan	5-20-53	5-20-53		X	100-H 190
H. D. Perkins Inland Motor Freight Kennewick, Washington	Deliver material on order	H. L. Morgan	5-20-53	5-20-53		X	100-B 190
D. Howell Inland Motor Freight Kennewick, Washington	Deliver material on order	H. L. Morgan	5-21-53	5-21-53		X	100-F 189
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order	H. L. Morgan	5-25-53	5-25-53		X	100-H 190

DECLASSIFIED

[redacted] DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order	H. L. Morgan	5-28-53	5-28-53		X	100-B 190
K. D. Rakestraw Propane Gas & Equipment Co. Kennewick, Washington	Deliver propane gas	R. J. Gandy	5-20-53	5-22-53		X	200-W XXX
J. McCracken Columbia Heat & Gas Co. Kennewick, Washington	Deliver material on order	R. J. Gandy	5-12-53	5-13-53		X	200-W XXX
W. A. Smith, Jr. National Lead Company Fernald, Ohio	Discuss Purchasing and Stores problems and examine the process	H. J. Wolte	5-19-53	5-21-53	X		300 303 100-H 105 200-W Redox

Ja-34

SUPPLEMENT -

ENGINEERING DEPARTMENT - TECHNICAL SECTION

I. Visitors to this Works

H. W. Alter Knolls Atomic Power Lab. Schenectady, New York	Discuss plutonium coupling, plutonium button line processing and chemical separations technology	F. W. Woodfield W. H. Reas	5-27-53	5-29-53	X		200-E 201-C 200-W Redox, 234, 234 300 3706

ENGINEERING DEPARTMENT - DESIGN SECTION

I. Visitors this Works

F. A. Salisbury North American Aviation Downey, California	Observe graphite machining facilities	J. R. Kelly	5-25-53	5-26-53	X		200-E 2101 101 Hanford

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
PLANT AUXILIARY OPERATIONS DEPARTMENT - PURCHASING AND STORES SECTION							
I. Visitors to this Works							
C. Bartolero Byron Jackson Los Angeles, California	Witness performance of pumping tests	G.J. Hayward	5-11-53	5-14-53		X	200-W XXX
R. J. Bledsoe X-ray Department General Electric Company Seattle, Washington	Inspect equipment furnished on P.O. HW 25097	G. J. Hayward	5-5-53	5-6-53		X	300 XXX
R. H. Braiker Cascade Fire Equipment Co. Yakima, Washington	Inspection and consultation on carbon dioxide	J. L. Goodrich	5-11-53	5-11-53		X	100-D 105 100-H 105
A. L. Bunke Byron Jackson Portland, Oregon	Witness performance of pumping tests	G.J. Hayward	5-11-53	5-14-53		X	200-W XXX
H. P. Eidson Rockwood Sprinkler Co. Los Angeles, California	Supervise installation of water fog system	G. J. Hayward	5-25-53	5-29-53		X	300 XXX
M. A. Erb Erb & Gray Los Angeles, California	Supervise installation of metallograph	G. J. Hayward	5-12-53	5-15-53	X		100-B XXX 300 XXX
MANUFACTURING DEPARTMENT							
I. Visitors to this Works							
K. A. Jones Travellers InsuranceCompany Seattle, Washington	Inspect boilers in power houses	J. H. Black	5-28-53	5-29-53		X	100-B XXX 100-D XXX 100-F XXX 100-H XXX 200-E XXX 200-W XXX 300 XXX 700

[redacted]

1204011

Ja-35

PURCHASING AND STORES SECTION
PLANT AUXILIARY OPERATIONS DEPARTMENT
SUMMARY - MAY 1953

Procurement responsibility on the Recuplex Project was transferred from the Atomic Energy Commission to the General Electric Company. Some procurement had been accomplished by A.E.C. prior to transfer of responsibility.

A.E.C. rejected our recommendation of January 6, 1953, to accept a $10,000 settlement from Apex Steel Corporation for defective material we received. The recommendation was re-submitted to A.E.C. with additional data justifying our recommendation and showing that the proposed settlement was equitable to both General Electric Company and the vendor.

The vendor holding our requirements contract for lime has been closed down by a strike for nearly two months. Since the inventory position was becoming critical, additional lime was purchased on the open market.

Production difficulties experienced by the fabricators of steel sleeves for the 300 Area line are being solved, and the inventory position should improve materially within the next few months.

Through negotiations with rail carriers, a size restriction was removed from NPCFB Section 22 Quotation No. 124-C so that a lower rate would apply on volume shipments exceeding 22 feet in length. This change was made retroactive to cover a movement of crane parts from Vancouver, Washington, to the Project thereby saving $930 in freight charges.

Westbound carloading freight rates in general are now lower than motor carrier freight rates from eastern points due to a tariff revision resulting from negotiations with carloading companies.

A change in the tariff description on the Special Graphite Bars to "Fire Brick Shapes, NOIBN" instead of "Furnace Liners" will result in a savings in freight charges of approximately $3,000 on the balance of the order.

Procedures to be used in procurement of emergency requirements of stainless steel from A.E.C. sponsored emergency warehouse stocks have been worked out and transmitted by instruction. This emergency stock arrangement makes available to us, for immediate delivery, limited quantities of more or less standard sizes of Type 347 tubing, pipe, plate, sheet, and bar.

Physical inventory of surplus materials will be taken June 10, 11, and 12. During the preparation for inventory, no surplus materials have been received. This shutdown is causing a backlog of about 60 days normal receipts with the flow scheduled to resume June 15.

Material and equipment disbursed from Stores Unit inventories, General Supplies (Account 10.2), Standby (Account 10.1), and Spare Equipment Held in Storage (Account 29) were valued at $195,077.00, $49,826.28, and $27,818.27 respectively for a total of $272,721.55.

Organization and Personnel

	4-30-53	5-31-53	Change
Employees on Roll	298	296	-2

1204072

PURCHASING AND STORES SECTION
AUDIT, PRIORITIES & CLERICAL UNIT

Procedures to be used in the procurement of emergency requirements of stainless steel from the Atomic Energy Commission sponsored emergency warehouse stocks have been worked out and transmitted by instruction. This emergency warehouse stock arrangement has been under consideration by the Atomic Energy Commission for some two years and now makes available to us, for immediate delivery, limited quantities of more or less standard sizes of Type 347 tubing, pipe, plate, sheet and bar.

Those sections of the Hanford Atomic Products Operation which were concerned with sales under ceiling price regulation, were again reminded of the necessity, under the regulations, for retaining their records complete until April 30, 1955.

Seven vendors' representatives were brought in to inspect and supervise installation of equipment in the areas.

May 1953

Cost Category	VENDOR TYPE: Government Agency	Small Business	Big Business	Educational and Other
$0 - $ 9.99	$ 423.91	$ 813.24	$ 306.89	$ 9.00
$10 - $ 499.99		100,888.08	58,156.52	253.08
$500— $9,999.99		186,674.83	144,290.53	
$10,000 - Up		109,551.19	672,336.41	
	$ 423.91	$397,927.34	$875,090.35	$ 262.08
Number of Actions	11	1274	788	8
Requisitions on hand 5-1-53		G	D	Total
Operations Procurement		880	0	880
Construction Procurement		0	90	90
A.E.C. Procurement		89	23	112
	Total	969	113	1082
Requisitions Assigned during May				
Operations Procurement		1965	0	1965
Construction Procurement		0	185	185
A.E.C. Procurement		253	21	274
	Total	2218	206	2424
Requisitions Placed during May				
Operations Procurement		2082	0	2082
Construction Procurement		0	185	185
A.E.C. Procurement		209	23	232
	Total	2291	208	2499
Requisitions on hand 5-31-53				
Operations Procurement		763	0	763
Construction Procurement		0	90	90
A.E.C. Procurement		133	21	154
	Total	896	111	1007

1204073

PURCHASING AND STORES SECTION
AUDIT, PRIORITIES & CLERICAL UNIT

		HW	HWC
Purchase Orders Placed			
Operations Procurement		1761	
Essential Materials		32	
Construction Procurement			143
Local Purchases		7	
	Total	1800	143
Value of Purchase Orders Placed			
Operations Procurement		$439,311.49	
Essential Materials		447,941.92	
Construction Procurement			$464,236.25
Local Purchases		42.32	
	Total	$887,295.73	$464,236.25

Alterations Issued	Increase	Decrease	No Change	Total
HW Operations	50	33	7	90
Essential Materials	10	15	2	27
HWC Construction	11	9	1	21
Total	71	57	10	138

Value of Alterations Issued	Increase	Decrease	Total
HW Operations	$13,551.10	$ 2,574.77	$ 16,125.87
Essential Materials	46,139.96	138,625.36	184,765.32
HWC Construction	5,165.66	1,484.89	6,650.55
Total	$64,856.72	$142,685.02	$207,541.74

Government Transfers	OR	ORC
	2	0

Vendor Contacts	181
Claims Processed	0
Damage Reports Processed	9
Over and Short Reports Processed	3
Accounts Payable Requests Handled	348
Difference Slips Processed	58
Alterations	126
Clearance Slips	133
Purchase Order Change Approvals	63
Material Exception to Receiving Reports	204
Return Orders Issued	143

Organization and Personnel

	4-30-53	5-31-53	Change
Employees on Roll	32	30	-2

PURCHASING AND STORES SECTION
CONSTRUCTION PROCUREMENT UNIT
MAY, 1953

A number of purchase requisitions were received covering material and equipment for Tasks I and II in connection with Building 234-5 Expansion. These purchase requisitions are now being screened thru Stores and Kaiser Engineers Excess and upon receipt will be processed thru Purchasing.

The Atomic Energy Commission rejected our recommendation made on January 6, 1953 to accept a $10,000 settlement from the Apex Steel Corporation in connection with defective material received on HWC 12192. The recommendation was resubmitted to A.E.C., along with additional data, justifying our recommendation and showing that the proposed settlement was equitable to both General Electric Company and the vendor.

Procurement responsibility on the Recuplex Project was transferred from the Atomic Energy Commission to General Electric Company. A portion of the procurement of material and equipment had been accomplished by A.E.C. prior to the transfer of responsibility.

Organization and Personnel

	4-30-53	5-31-53	Change
Employees on Roll	14	15	+1

1204075

PURCHASING AND STORES SECTION
OPERATIONS PROCUREMENT UNIT
MAY -- 1953

Statistical and General

The supply of caps and cans continues to improve. Our position is nearly normal and, barring unforeseen difficulties, should now continue on a satisfactory basis.

The Evans, Washington plant of the U. S. Gypsum Company, the vendor holding our requirements contract for lime, has been closed down by a strike. This strike has been in progress for nearly two months and, as our inventory position was becoming critical, additional lime was purchased on the open market.

Production difficulties experienced by the fabricators of steel sleeves for the 300 Area line are being solved, and our inventory position should improve materially within the next few months.

Essential Materials contracts in process are as follows:

1. Sodium Silicate — approved by the A.E.C. and in force.

2. Rock Salt -- contract negotiated and final form ready for G.E. approval.

3. Sodium Carbonate -- bids have been received and evaluated; record of purchase at Commission for approval.

4. Tributyl Phosphate — bids have been received and evaluated; record of purchase at Commission for approval.

5. Steam Coal -- request for quotations in the hands of vendors; bids due June 10.

Organization and Personnel

	4-30-53	5-31-53	Change
Employees on roll	33	33	-0-

1204076

PURCHASING AND STORES SECTION
STORES UNIT
MAY, 1953

STATISTICAL AND GENERAL

The physical inventory of Surplus Materials will be taken on June 10, 11 and 12. Preparations for this count have received our concentrated attention during the entire month, and the following phases have been completed at month-end:

1. Evacuation of Warehouse #2 in White Bluffs and removal of material to Yard #2, 3000 Area.
2. General clean-up of deteriorated or damaged material. Property Disposal Reports totaled $18,031.10 from this activity.
3. Segregation, rearrangement and prepackaging of materials.
4. Writing of inventory tags for all items in stock.

During inventory preparation, no surplus materials have been received from other departments or other contractors. This shutdown is causing a backlog of about 60 days normal receipts, with the flow scheduled to be resumed June 15. The material should be in better condition to segregate and store through the revision of instructions in O.P.G. 21.5.

Through concerted efforts to ship as much material as possible, to clean up warehouses and to refrain from receiving additional surplus, our inventory has been reduced over $545,000 during the month to a month-end balance of $2,776,704.11. This reduction will result in a more accurate and more economical physical inventory than would otherwise be possible.

The assumption of responsibility for the storeroom in 722 Combined Shops, reported last month, is scheduled for June 18, coincident with the physical count of Community inventory by Internal Audit. Photographic supplies previously stocked by the Photo Unit will be carried in stores stock in the future and warehoused in 713-B temporarily. The Stores Unit has assumed custodial responsibility for Office Furniture as of May 4. This class includes both capital and expense items. Reorder will be handled by the Office Equipment group of the Office Unit, although General Material Records of Stores Unit will be responsible for records and reports.

Materials and equipment disbursed from inventories included the following principal items:

General Materials (Account 10.2)	$ 195,077.00
Standby Materials (Account 10.1)	49,826.28
Spare Equipment Held in Storage (Account 29)	27,818.27
Total	$ 272.721.55

In Surplus Materials, the following items are noteworthy:

Disbursements by Store Order and Transfer	$ 58,085.06
Amount included in above furnished for new construction	27,078.24
Offsite shipments billed	492,705.19
Inventory balance, May 31, 1953	2,776,704.11
Value of excess lists awaiting AEC disposition	2,361,906.23
Receipts of surplus material	23,100.40

ORGANIZATION AND PERSONNEL

	4-30-53	5-31-53	Change From Last Month
Employees On Roll	208	207	-1

1204078

PURCHASING & STORES SECTION

TRAFFIC UNIT

May, 1953

STATISTICAL AND GENERAL

Through negotiations with the rail carriers, we were successful in having a size restriction removed from NPCFB Section 22 Quotation No. 124-C so that the lower rate would apply on volume shipments exceeding 22 feet in length. This change was made retroactive so as to cover a movement of crane parts from Vancouver, Washington to the Project, thereby effecting a savings in freight charges of approximately $930.00.

As a result of changing the tariff description on the Special Graphite Bars to "Fire Brick Shapes, NOIBN" instead of "Furnace Liners", approximately $3,000.00 in freight charges will be saved on the balance of the order.

Effective May 18, 1953 the transcontinental motor carriers were granted approximately an 6½ % increase in freight rates.

Negotiations with the Carloading companies resulted in a change on May 25 in the Westbound arbitrary class rate tariff structure, effecting a savings up to 10¢ per cwt. in freight charges. Due to this tariff revision and the motor carrier's rate increase, westbound carloading freight rates in general, are now lower than motor carrier freight rates from Eastern points.

A recent change in West Coast Airlines evening flight schedule from Pasco to Spokane enables employees to make direct connection with the Northwest Airlines Stratocruiser on eastbound trips. This has greatly reduced the use of Project cars to carry employees to Pasco to board train, as limousine service is provided to the airport.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of May amounting to $2,998.10. This makes a total savings from September 1, 1946 to date of $1,743,455.42

1204079

PURCHASING & STORES SECTION
TRAFFIC UNIT
May, 1953

Savings Report

1. Rate reductions obtained from carriers:

Commodity	Origin	Savings for May, 1953	Savings from 9-1--46 thru April, 1953	Savings from 9-1-46 to date
Extrusions, aluminum	Phoenix, Ariz.	$ 61.55		
Gases, compressed	Yakima, Wash.	31.53		
Limestone	Delle, Utah	320.00		
Phosphoric Acid	Newark, Calif.	438.10		
Silicate of Soda	Tacoma, Wash.	1,221.51		
Sulfamic Acid	Grasselli, N.J.	925.41		
		$2,998.10	$1,740,457.32	$1,743,455.42
2. Freight Bill Audit		660.39	109,158.03	109,818.42
3. Loss & Damage & Overcharge claims		327.74	125,644.76	125,972.50
4. Ticket Refund Claims		406.64	30,790.48	31,197.12
. Household Goods Claims		14.18	17,181.77	17,195.95
		$4,407.05	$2,023,232.36	$2,027,639.41

Work Volume Report

Reservations Made	Rail	57
	Air	179
	Hotel	147
Expense Accounts Checked		187
Household Goods & Automobiles	Movements Arranged Inbound	3
	Movements Arranged Outbound	1
	Insurance Riders Issued	5
	Claims Filed	2
	Claims Collected-Number	1
	Claims Collected-Amount	$14.18
Ticket Refund Claims	Filed	12
	Collected Number-	14
	Collected-Amount	$406.64
Freight Claims	Filed	12
	Collected-Number	8
	Collected-Amount	327 .74
	Over And Shorts Processed	9
	Damage Reports Processed	9

1204080

PURCHASING & STORES SECTION
TRAFFIC UNIT
May, 1953

Freight Bill Audit Savings		$660.39
Freight Shipments Traced		44
Quotations	Freight Rates	220
	Routes	246
Bills Approved	Air Express	25
	Boat	8
	Carloading	51
	Express	180
	Rail	643
	Truck	356
Carload Shipments	Inbound	743
	Outbound	4

Reports of Carloads Received

Commodity	CMSTP&P	NP	UP	TOTAL
Acetic Acid		1		1
Aluminum Sulphate	2	2	1	5
Anhydrous Hydroflouric Acid			1	1
Asphalt	1		1	2
Bath Tubs			1	1
Bichromate of Soda		1		1
Brick		1		1
Caustic Soda	17	10	15	42
Chlorine	1	1	1	3
Coal	122		504	626
Ferrous Ammonium Sulphate	2			2
Furnace Liners			12	12
Lime Rock			1	1
Methyl Isobutal Keytone	1	1		2
Nitric Acid		5	6	11
Nitrate of Soda		1		1
Pallets	2			2
Phosphoric Acid	1			1
Roofing Material		1		1
Salt	1			1
Silicate of Soda	4	3	3	10
Soda Ash	1	1		2
Steel Bars	1			1
Sulfamic Acid	1			1
Sulfuric Acid	1	1		2
Merchandise	3	5	2	10
Total	161	34	548	743

Organization & Personnel	4-30-53	5-31-53	Change
	11	11	0

1204081

55-405

U. S. ATOMIC ENERGY COMMISSION
HANFORD OPERATIONS OFFICE
RICHLAND, WASHINGTON

DATE: June 17, 1955

TO: BUDGET

Subject: NOTICE OF CHANGE IN CLASSIFICATION

Notice has been received from the General Electric Company Non-Technical Document Review Board, Hanford Atomic Products Operations, Richland, Washington covering the following change in classification action effective March 10, 1955.

Hanford Document No. 50787 G. E. Document No. HW-50787-1

Doc. Date 6-11-53 Original Classification Restricted

Title or Subject: Transportation Section Monthly Report-May 1953

Author(s) or Originator M. P. Rice

Pages No-1 thru No-4 (X) Downgraded to Official Use Only

( ) Classification Cancelled

According to our records you have copy(ies) 2 and 10 Series --

INSTRUCTIONS.

Block out all present classification markings, which may be inconsistent with the changed classification indicated above, and re-mark in accordance with existing AEC Security Regulations.

REMARKS: This action applies only to the Transportation Section Monthly Report for May, HW-50787 and does not affect the classification of any part of the report.

This document was transmitted to you 6-20-55
from Hanford on _____
Registry No. _____

Lee E. Speer

LEE E. SPEER, Chief
Classified Document Control

1204082

[redacted]

[redacted]

HW-28267
Classification Cancelled or Changed to
[redacted]

By authority of THE GENERAL ELECTRIC COMPANY, NON-TECHNICAL DOCUMENT REVIEW BOARD. ROY E. JAYNES, Secretary.
Date 8-14-53

TRANSPORTATION SECTION
MONTHLY REPORT
May 1953

GENERAL

Transportation Section personnel forces decreased from 523 to 522 by 4 new hires 1 transfer in, 1 reactivation - personal illness, 2 terminations, 3 transfers out and 2 deactivations - personal illness.

Satisfactory progress continued on the New Consolidated Transportation Facilities. The revised plans were reviewed by Transportation representatives with Mr. R. G. Johnson of the Architect-Engineers on May 18 and 19 and only five corrections were requested. Plans are being firmed preparatory to bids and the awarding of an initial contract for site grading, foundations, steel columns and a roof over the main shop area with actual construction to begin prior to July 1.

RAILROAD ACTIVITIES

Commercial cars handled during May increased 16% over April as receipts of construction materials continued to increase. The following recapitulation indicates the distribution of commercial cars handled.

Carload Movements -	Loads In	Empties In	Loads Out	Empties Out
General Electric Company	736	35	19	726
Blaw-Knox	35	-	-	26
Browne-Morse Co.	2	-	-	1
B. W. Burtch Co.	1	-	-	1
Isaacson Iron Works	1	-	-	1
Kaiser Engineers	209	-	-	192
Steel Construction Co.	12	-	-	15
U. S. Army	22	2	2	22
A.E.C. Kaiser Eng.	104	-	-	88
	1,122	37	21	1,072

Process service continued at a high level during May and required 133.5 hours of overtime primarily due to scheduling complexities. Actual cars handled increased 7.5% over April.

Car movements including process service totaled 2,617 in May compared to 2,278 in April, 2,314 in March, 2,691 in February and 2,730 in January.

Work train service for the Atomic Energy Commission involved the handling of 29 cars of ballast in the 200-East Area on May 11, 12, 13, 14 and 18.

Completed annual inspections on railroad hopper cars 10C-3645, 10C-3650, 10C-3653, 10C-4605, 10C-4607 and 10C-4609.

[redacted] DECLASSIFIED

1204083

OFFICIAL USE ONLY

DECLASSIFIED

Transportation Section

Traction motor repairs on locomotive 39-3731 involving broken brushes were performed on May 7, 13 and 21. The General Electric District Apparatus Sales Office at Pasco was contacted regarding possible causes for the breakage; however, no definite conclusions have been reached nor were any abnormal conditions detected by mechanical personnel.

An inspection on May 15 revealed flat spots on all wheels of the U.S. Army car operated off-plant by the Atomic Energy Commission. Personnel in charge of the car were notified and the wheels were changed on the first off-plant trip.

The installation of additional sprinkler heads in the Riverland Roundhouse has been completed as requested by Plant Fire Protection personnel.

A physical inventory of railroad equipment maintenance repair parts at Riverland was conducted on May 20. The status of this material is being changed from expense to asset and will hereafter be recorded in Subaccount 932 Railway Equipment Parts under General Ledger Account 10.2 - Inventories - General Maintenance.

Railroad track maintenance continued on a routine basis. Lining, surfacing and dressing of trackage required 4,067 man-hours. Installation fo tics, rail and other track materials required 652 man-hours. Distribution and handling of track materials required 1,002 man-hours. Weed control required 152 man-hours. Special work orders for the Atomic Energy Commission required 82 man-hours.

Weed spraying activities on the Plant Railroad System were concluded for this season unless a second large scale germination of seeds should result from adverse weather conditions.

AUTOMOTIVE ACTIVITIES

The Plant Bus System transported 10.5% fewer passengers in May than in April. The following statistics indicate the magnitude of service rendered:

Passenger volume	134,669
Revenue - bus fares	$ 6,733.45
Earnings - transit advertising (April)	$ 150.92
Bus trips	6,312
Bus miles - passenger carrying	189,511
Passenger miles	4,700,244

OFFICIAL USE ONLY

1204084

Transportation Section

DECLASSIFIED

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	11
Passenger buses - 100-H	8
Passenger buses - 100-K	3
Passenger buses - Hanford	1
Passenger buses - 200-West	31
Passenger buses - 200-East	5
Passenger buses - 300 Area	6
Passenger buses - Riverland	2
Passenger buses - White Bluffs	1
Passenger buses - North Richland	4
700-300 Area Shuttle	16
Inter-Area Passenger Shuttle & Express	2

Effective May 19 initial bus service was established for the 2101 Building 200-East Area. Present service is restricted to the day and swing shifts with full shift coverage being anticipated the latter part of June.

The Richland Bus System transported 3.9% fewer passengers in May than in April. The following statistics indicate the volume of service rendered:

Total passengers including transfers	12,990
Revenue - bus fares	$ 829.53
Earnings - transit advertising (April)	$ 12.40
Bus trips	1,149
Bus miles - passenger carrying	6,090
Passenger miles	31,598

A meeting was held on May 22 with representatives of the Atomic Energy Commission concerning the possible contracting of the Richland Bus System. Plans were made to advertise for bids on the Richland Bus System only excluding the shuttle bus operation in Richland which is presently an integral part of the Plant Bus System. The General Electric Contract Unit is to solicit bids from interested bus operators with the view of formulating a contract after reviewing the various proposals. Bids will be received beginning June 1 with the expectation of negotiating a contract on June 23.

Off Plant chauffeured automobile trips (Company business and/or official visitors) totaled 135 which were rendered to the following locations as indicated:

Benton City, Washington	4
Hinkle, Oregon	21
Kennewick, Washington	9
Pasco Washington	58
Pendleton, Oregon	30
Prosser, Washington	5
Sunnyside, Washington	2
Yakima, Washington	6

Transportation Section

The following tabulation indicates the volume of Drivers Test Service rendered:

Applicants:	Male	36	Number tests given	39
	Female	3	Number rejected	0
Permits issued:	Limited to driving with glasses			13
	Unlimited			26
Permits reissued:	Routine		22	

The following tabulation indicates the volume of fuel distribution by Equipment Maintenance personnel:

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	48,740	21,400	14,800	1,718	243
Received during month	106,105	45,940	30,500	851	212
Dispensed during month	109,715	42,420	26,400	1,275	245
Stock at end of month	45,130	24,920	18,900	1,294	210

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Atomic Products Operations automotive and heavy equipment by Equipment Maintenance personnel:

Motor overhauls	33
Class A Inspections and Repairs	112
Class B Inspections and Lubrications	1114
Bi-weekly inspections - buses	145
Other routine maintenance repairs and service calls	2055
Accident repairs and paint jobs	28
Tire repairs	578
Wash jobs	482

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	338	602,291
1B	Buses	100	240,289
1C	Pickup Trucks	460	305,740
1D	Panel, Carryall, Sta. Wagon	130	158,500
1E	Armored Cars	2	308
1G	Jeeps	2	931
68 Series	Trucks	207	88,226
		1,239	1,396,285

DECLASSIFIED

[redacted]

DECLASSIFIED

Transportation Section

Major heavy equipment repairs were made to two cranes, one crusher, two lift trucks, one loader, two tractors, one compressor and one weed spraying unit.

Effective May 25 the scueduled operating hours for service stations was increased from four to eight hours in the 100-B, 100-D and 100-F Areas. This increased service has been accomplished without additional personnel and was deemed advisable in view of increasing activities and requests for service during non-scheduled hours.

A complete physical inventory of automotive and heavy equipment repair parts was conducted on May 20 and 21. This included some 10,000 different line items located in the 1125 Warehouse plus operating stocks at all garages. Material on hand in 100-B, 100-D, 100-F, 100-H and 200-West Areas is being changed from expense to asset status and transferred to Subaccount 931 Automotive and Heavy Equipment Parts under General Ledger Account 10.2 - Inventories-General Maintenance. Inventory control will be handled through the 100-H Area Garage where stock record cards will be maintained; store orders written for cost purposes; and material transfers prepared for stock replacement.

The formal report and recommendations of the Internal Audit Unit on the physical inventory of fuels and lubricants that was conducted on January 23, 1953 has been received and is being studied. Effective May 1, an expected loss of one-half of one per cent on all fuels for spillage, temperature evaporation or shrinkage, etc. was financially recognized and is being met by a corresponding increase in the sale price with a no cost quantity adjustment at the end of each month by the General Cost Unit.

A new gasoline contract at $0.15363 per gallon has been awarded to the Phillips Petroleum Company from May 1 through October 31. This compares with the contract price of $0.1745 per gallon by the True's Oil Company which expired on April 30. The new contract price was somewhat surprising in view of the general increase of February 16 throughout the Pacific Northwest.

A contract has been awarded to the GMC Truck and Coach Division to furnish twenty-two 53-passenger suburban type buses, Model TDM 5107, with a final delivery date of not later than September 15.

The Ford Motor Company was awarded a contract on May 20 to furnish 24 sedan delivery trucks during September.

A study of equipment utilization in the 100 Areas by Transportation Equipment Control has resulted in the establishment of light equipment pools by the Reactor Section.

Five DC sedans have been assigned to the 700 Area Motor Pool for construction personnel thus increasing the availability of HO sedans for operating personnel.

1204087

OFFICIAL USE ONLY

OFFICIAL USE ONLY

DECLASSIFIED

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of road asphalt material handled by Transportation Services personnel:

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	8,892	0	0
Received during month	0	9,388	0	9,334
Used during month	0	6,760	0	0
Stock at end of month	0	11,520	0	9,334

The following tabulation indicates the volume of road aggregate material handled by Transportation Services personnel:

	3/4" to 0 Pre-mix Tons	½" to 0 Pre-mix Tons	5/8" Chips Cu.Yd.	1/4" Chips Cu.Yd.
Stock at start of month	298	138	1,085	6,628
Made during month	0	0	926	449
Used during month	157	12	0	0
Stock at end of month	141	126	2,011	7,077

Completed the center line striping of all roads within the permieter barricades in accordance with the revised Bureau of Public Roads Standards. This involved the restriping of approximately 250 miles of Plant roads and required 329 man-hours during May.

A physical inventory of road maintenance materials was conducted on May 20.

The 1953 road sealing program was begun during the month with the first application of a double shot and cover on Newton Street and Spangler Road. This involved approximately one mile of 20' roadway.

The summer delivery of ice to all areas was begun on May 4.

Covering of contaminated regions with asphaltic material in the 200-East and 200-West Areas totaled approximately 100,000 square feet and required 113 man-hours.

Maintenance of primary roads required 436 man-hours; Manufacturing Area walkways, parking areas and other related work 300 man-hours.

Administration Area maintenance services required 813 man-hours.

Handling of materials and equipment for the Stores Unit included 9 carloads and 134 truckloads and required 2,754 man-hours.

The daily trucking service between Richland and the Manufacturing Areas handled 456 cases of acid, 1,290 cylinders of compressed gas and 654 tons of operational supplies requiring 1,523 man-hours.

The handling of office furniture, equipment and records involved 166 moving jobs requiring 1,086 man-hours.

Miscellaneous labor and equipment services for the 300 Area required 351 man-hours.

Movement of equipment and material and other miscellaneous labor services for the 100 and 200 Areas required 843 man-hours.

Mosquito control activities required 235 man-hours. Miscellaneous labor and equipment services for the Community required 64 man-hours.

[redacted]

DECLASSIFIED

Copies #1 - #12-Plant Monthly
13-HD Middel
14-RB Britton
15-FJ Mollerus
16-AEC
JI Thomas
17-700 File
18-300 File
19-HA Remaly
20-HA Carlberg
21-O Mageehon
22-ES Staples

June 5, 1953

ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION

MONTHLY REPORT

MAY 1953

GENERAL

The Section work backlog, as of May 31, totaled 2958 man-days distributed as follows:

	Days Per Craftsman	Total Man-Days	Net Change Man-Days
Line Maintenance	37	849	238 decrease
Substation Maintenance	26	341	64 decrease
Telephone Unit	41	1768	176 decrease

Section total work force was reduced to one hundred and seventy-four (174) as of May 31.

Process load power peak demand for May:

Date	Demand KW	April Comparative KW Demand
5-22-53 (11:30 AM-12 N)	106840	108300

R. B. Britton has spent sufficient time with the Section during the month to be prepared to succeed F. J. Mollerus as Section Manager June 1, 1953.

[redacted]

1204089

ELECTRICAL DISTRIBUTION UNIT

Maintenance and Operation

Switching operations were performed at Substation 151-BC at 8:30 AM, May 5, 1953 preliminary to removing transformer No. 2 from service during a scheduled critical power condition Grade "W". A differential relay operation resulted which interrupted power supply to transformer No. 3, "scramming" Buildings 105-B and 105-C. Service was restored at 8:41 AM with Building 105-B resuming operation at 8:53 AM and Building 105-C at 9:17 AM. Investigation for cause of the relay operation disclosed reversed connections between current transformers and differential relay coils due to an error in the original design wiring diagram.

Frequency on the 230 kv system dropped to 59.1 cycles for approximately one and one-half minutes at 9:20 AM, May 7, 1953. Lowered frequency resulted from differential relay action at BPA's Ross Dam Substation which took a line out of service from that source. Conditions were analyzed and Hanford Operations electrical system dispatcher did not establish a critical power condition, consequently production was not affected.

A 2300 volt emergency aerial cable supplying the 200-W Redox Area developed a fault and was out of service for repairs from 12:30 PM to 5:30 PM, May 11, 1953. The outage did not affect production. Two faults have developed in this cable apparently from damages received during installation. It has been tested at manufacturer's design voltage.

System Expansion and Planning

Bonneville Power Administration is preparing designs for installation of a third 230 kv bus section at their Midway Substation. Plans were to locate the No. 1 Hanford line on this new section at an approximate cost of $175,000.00. A study of the advantages to be gained by the move was made by the Electrical Distribution Unit System and Planning Group and a conclusion reached that any advantages to be gained would not justify the expenditure. The change will not be included in the design.

Short circuit capacity of the Midway 230 kv bus is approximately 3900 mva and the present capacity of the Midway-Hanford line [redacted]

(a) A proposal, based on a recent study prepared by the Hanford Electrical Distribution Unit, to purchase power for the 300 and 3000 (N.Richland) Areas on a rate schedule similar to the Village schedule (E-4). This change would involve the transfer to BPA of the Benton Switching Station - Richland 115 kv line. If BPA seriously considers the proposition it is probable the change will not be made until FY 1955 since their present budget does not include funds for purchase of the line. Estimated on present loading, Hanford Operations would realize an approximate $50,000.00 annual saving which would increase with any additional 300 Area load.

(b) The subject of separate billing for 100-K Area testing power was discussed in detail. BPA will provide meters and the Electrical Distribution Unit will furnish potential and current transformers. BPA will prepare a contract which will be subject to approval of the FPC.

TELEPHONE UNIT

Maintenance and Operation

A summary of telephone subscriber service is as follows:

	Subscriber Stations In Service		Lines Available For Service	Sides Available For Service	Exchange Lines In Service
	Res. & Misc.	Official			
Richland	5866	980	56	257	3906
N.Richland	328	304	87	43	513
Process Areas	21	1516	475	—	1477
Total	6215	2800	618	300	5896

Richland Exchange four-party service:

	May 31, 1953	April 30, 1953
Number of lines, complete fill	147	142
Partial fill with three subscribers	59	58
Subscribers	849	814

Forty-nine requests were received for residential telephone service leaving a backlog of one hundred and sixty-one (161) as of May 31.

1204091

System Expansion and Planning

A study is in progress for determining the most economical location for the Richland "Official" Telephone Exchange (Project CG-533) which includes possible utilization of an addition to Building 702.

The present contract for publication of the telephone directory expires in May 1953. Following the next issue future bids for publication will cover separate "official" and Richland directories.

An Organization and Policy Guide (02.6) was issued consolidating the responsibilities for maintenance, repair, purchase and assignment of all radio communications equipment. This function is now the responsibility of the Telephone Unit.

Richland cable plant route data was compiled for the American Engineers for provision of adequate right of way easements in the new Richland plat.

R B Britton
ELECTRICAL DISTRIBUTION
AND TELEPHONE SECTION

RB Britton:HAR:ag

DECLASSIFIED

DECLASSIFIED

POWER STATISTICS
ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION
FOR MONTH ENDING MAY 31, 1953

744 Hours

	ENERGY - MW HRS.		MAXIMUM DEMAND - KW		LOAD FACTOR - %	
	Last Month	This Month	Last Month	This Month	Last Month	This Month
230 KV System						
A-2 Out (100-B)	26310	27990	40600	44200	90.0	85.1
A-4 Out (100-D)	15510	15530	25000	23300	86.2	89.6
A-5 Out (100-H)	2880	7668	14550	14500	27.5	71.1
A-6 Out (100-F)	7850	8060	13000	12000	83.9	90.3
A-8 Out (200 Area)	5040	5544	8640	10080	81.0	73.9
TOTAL OUT	57590	64792	101790 **	104080 **	78.6	83.7
MIDWAY IN	59015	65443	99200 *	99600 *	82.6	88.3
Transm. Loss	--	--				
Percent Loss	--	--				
115 KV System						
B1-S4 Out (N. Rich.)	1891	1723	3974	3456	66.1	67.0
B1-S5	101	94	518	432	27.1	29.2
Richland	8874	7870	19520 *	17280 *	63.1	61.2
BB3-S4 Out (300 Area)	1288	1296	2800	2800	63.9	62.2
TOTAL OUT	12154	10983	26812 **	23968 **	63.0	61.6
BENTON IN	12240	10980	31600 *	30000 *	53.8	49.2
So. Richland In	0	280	0	20000 *	0	1.9
TOTAL IN	12240	11260	31600 **	50000 **	53.8	30.3
Transm. Loss	--	--				
Percent Loss	--	--				
66 KV System						
B9-S11 Out (100-K)	402	498	1120	1280	49.8	52.3
B7-S10 Out (W.Bluffs)	381	363	1035	1125	51.1	43.4
Hanford Out	202	167	400 **	400 **	70.1	56.0
TOTAL OUT	985	1028	2555 **	2805 **	53.5	49.2
HANFORD IN	970	1025	2500 *	2500 *	53.9	55.1
Transm. Loss	--	--				
Percent Loss	--	--				
Project Total						
230 KV Out	57590	64792	101790 **	104080 **	78.6	83.7
115 KV Out	12154	10983	26812 **	23968 **	63.0	61.6
66 KV Out	985	1028	2555 **	2805 **	53.5	49.2
TOTAL OUT	70729	76803	131157 **	110853 **	74.9	93.1
230 KV In	59015	65443	99200 *	99600 *	82.6	88.3
115 KV In	12240	11260	31600 **	50000 **	53.8	30.3
66 KV In	970	1025	2500 **	2500 **	53.9	55.1
TOTAL IN	72225	77728	133300	152100	75.3	68.9
Transm. Loss	--	--				
Percent Loss	--	--				

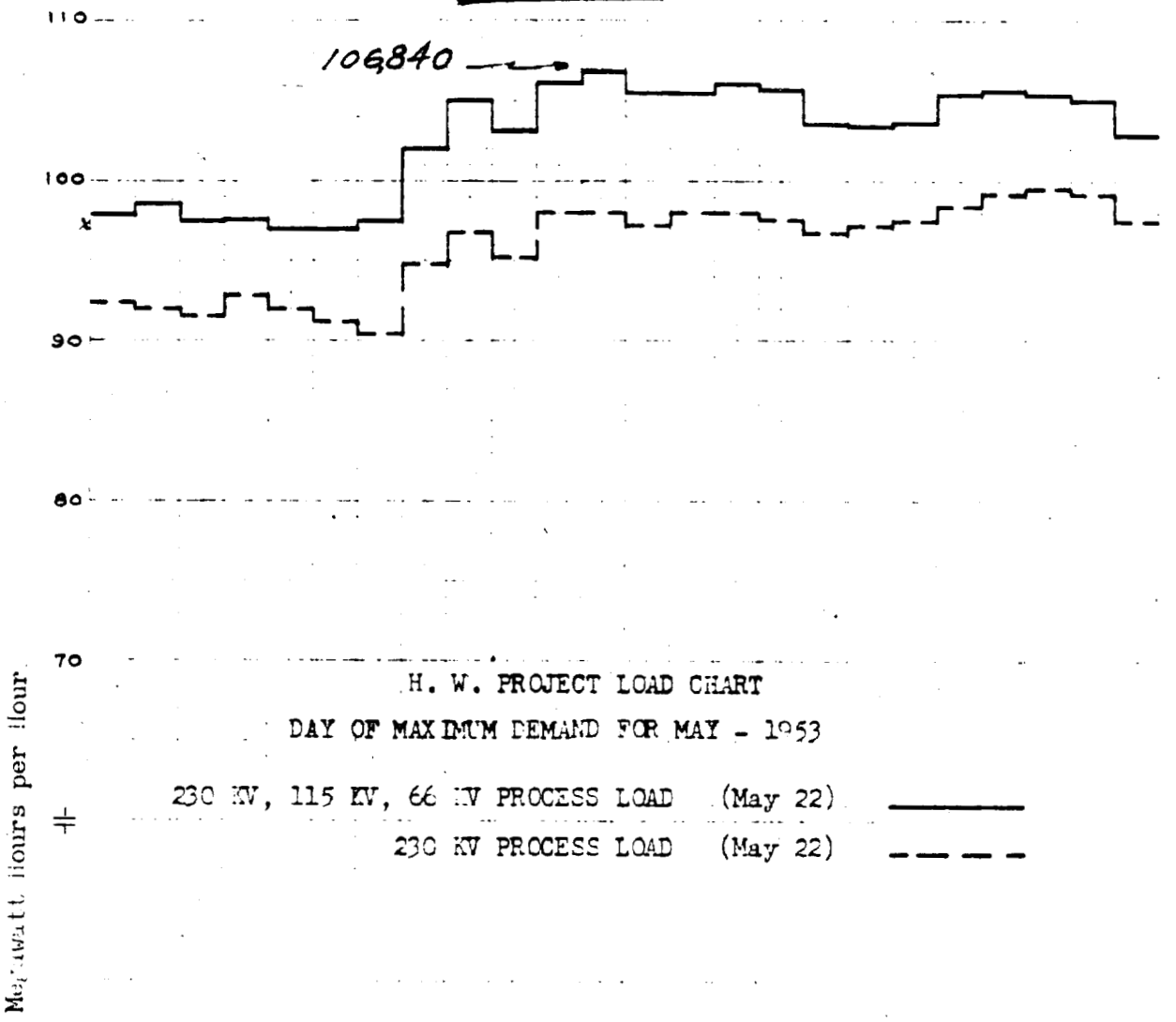
* Denotes Coincidental Demand
** Denotes Non-Coincidental Demand

Average Power Factor - 230 KV System 91.2
Average Power Factor - 115 KV System 89.8
Average Power Factor - 66 KV System 88.8

1209693

[redacted]

[redacted]



DECLASSIFIED

1209094

[redacted]

PLANT AUXILIARY OPERATIONS DEPARTMENT
STATISTICAL AND COMPUTING SECTION
MAY
MONTHLY REPORT - JUNE, 1953

Personnel Statistics

Following is the month end summary of personnel:

Statistical and Computing Section

	As of 4-30-53			As of 5-31-53			Net Change		
Unit	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
General	1	1	2	1	1	2	0	0	0
Statistics	8	4	12	7	3	10	-1	-1	-2
Computing	20	42	62	20	42	62	0	0	0
Graphics	1	5	6	1	7	8	0	+2	+2
Procedures	9	5	14	8	4	12	-1	-1	-2
TOTAL	39	57	96	37	57	94	-2	0	-2

Statistics Unit

	As of 4-30-53			As of 5-31-53			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	1	1	2	1	1	2	0	0	0
Administrative Statistics	2	0	2	3	0	3	+1	0	+1
Precision & Quality Control	2	3	5	1	2	3	-1	-1	-2
Technical Statistics	3	0	3	2	0	2	-1	0	-1
TOTAL	8	4	12	7	3	10	-1	-1	-2

R. F. Cell resigned effective May 9 to accept a position as statistician with the Bendix Aviation Corporation in Kansas City, Missouri. Betty M. Hunt terminated on May 15 because of home responsibilities. Joan V. Cannon was transferred from Technical to Administrative Statistics effective May 15.

DECLASSIFIED

1289695

[redacted]

Computing Unit

	As of 4-30-53			As of 5-31-53			Net Change		
	Ex	Non-Ex	Total	Ex	Non Ex	Total	Ex	Non-Ex	Total
Staff	2	2	4	2	2	4	0	0	0
Analysis and Programming	11	5	16	11	5	16	0	0	0
Operation	7	34	41	7	34	41	0	0	0
Rot. Training	0	1	1	0	1	1	0	0	0
TOTAL	20	42	62	20	42	62	0	0	0

Graphics Unit

	As of 4-30-53			As of 5-31-53			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	1	0	1	1	1	2	0	+1	+1
Illustrators	0	4	4	0	5	5	0	+1	+1
Graphic Designer	0	1	1	0	1	1	0	0	0
TOTAL	1	5	6	1	7	8	0	+2	+2

One graphic illustrator was hired effective 5-8-53, and one secretary was transferred from the Procedures Unit to the Graphics Unit effective 5-4-53.

Procedures Unit

	As of 4-30-53			As of 5-31-53			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	1	2	3	1	1	2	0	-1	-1
Clerical	0	3	3	0	3	3	0	0	0
Procedure Analysts	8	0	8	7	0	7	-1	0	-1
TOTAL	9	5	14	8	4	12	-1	-1	-2

One secretary was transferred to the Graphics Unit effective 5-4-53, and one procedure analyst transferred to the Engineering Department effective 5-25-53.

[redacted]

1204396

FOR THE MANUFACTURING DEPARTMENT

A report revising the sampling plan for evaluating the reactivity of lithium-aluminum alloy slugs was issued (document HW-28155, "Reduced Inspection Plan for 305 Testing of P-10 Slugs", to H. A. Fowler from D. O. Richards). The revised plan, like the original, is a double sampling plan, but is based on the assumption of a known variance within heats. A considerable saving of test-pile time is realized, and in addition the computations required of the operators are simplified. While the revised plan was intended only for use on new P-10 material being received, it has been shown that the within heat variation in the NX material being removed from storage is comparable to that in the new material, so that the new plan is also valid for these lots. This was not the case for the NH material removed from storage, and it has been tested using the original plan.

The routine monthly statistical report on 300 Area operations was issued, ("Statistical Quality Report - 300 Area", to W. W. Windsheimer from the Statistics Unit).

A pile power map was prepared for the Process Sub-Section of the Reactor Section, for a new set of flows in C-Reactor. Due to the recharging of 700 tubes, the average flow through the central zone was increased. The usual tube factors were also calculated.

Temperature data is being furnished the Reactor Section for two tubes in DR-Reactor. This information will be used to determine the relation between heat generation and the exposure of the material in these tubes.

A final report was issued on a study previously reported in rough draft form ("Statistical Study of Hand and Shoe Counting", from N. D. Peterson to A. R. Keene, May 15, 1953). This report provides a number of counting plans from which choices can be made by the Radiation Monitoring Sub-Section. In these plans, the warning level of each counter is periodically and individually adjusted according to the background count. This is necessary because significant variability in background rates for different counters was found for both alpha and beta counters.

H-7 precisions and range limits are being determined as requested by the Process Unit Standards Laboratory. The precisions will be compared with previous figures for H-7, and it is anticipated that the Studentized range will be used in obtaining range limits.

Assistance to the Plant Engineering Sub-Section, Separations Section, in the analysis of data to be used in setting maintenance standards was completed. Verbal amplification of the work already done on this study was given in a conference with members of the Section.

Unit manufacturing cost curves for certain products have been fitted for the Manufacturing Department Staff. These have brought up to date curves that were fitted previously. The report of this work is being prepared.

DECLASSIFIED

[redacted]SIFIED

A study of certain aspects of Reactor Section costs has also been undertaken for the Manufacturing Department Staff. This work represents a modification and extension of the work outlined in "Scoping Report - Manufacturing Cost Study", from L. W. Smith to G. R. Moore, April 20, 1953.

Using weather data cards for March and April, 1953, average wet bulb thermometer readings were calculated. The averages were taken over a 24-hour period.

Graphics work for the Manufacturing Department included completion of the 1952 Annual Report and Yearbook plates; posting of April data to the Monthly Control Charts; and completion of a number of varied charts and graphs.

69 hours were spent on forms design for the Manufacturing Department.

FOR THE ENGINEERING DEPARTMENT

An equation of the form $R_t = R_o(1 + \alpha t)$ was determined relating resistance in ohms to temperature in degree centigrade for N-12 non-irradiated uranium samples. Corresponding limits on expected values were also determined. (Letter from Virginia Clark and F. H. Tingey to R. S. Kemper, "Equations of Temperature Versus Resistance for N-12 Uranium Samples".)

A comparison of dih values from beta heat treated rods with those from regular 8-inch M slugs for data covering the period January through March of 1953 was made. (Memorandum to H. Johnson from Virginia Clark, "Comparison of dih of Slugs from Beta Heat Treated Rods with that from 8-Inch M Slug Production".)

The study of data from Red Tag lots which were rolled in September at Simonds Saw and Steel was completed (document HW-28170, "Correlation Study of Red Tag Data from September Rolling", to W. T. Kattner from D. O. Richards). All conclusions and results relative to the relationships existing between dimensional changes (before and after beta heat treatment) rolling conditions (times and temperatures), physical properties (Rockwell "B" hardness, orientation, grain size, inclusion counts, etc.) and chemical properties (iron, silica, density, carbon, and nitrogen) were given.

A report giving results obtained through the establishment of the Mallinckrodt Chemical Works uranium metal lot system is nearing completion.

A meeting was held with the Pile Technology Section to discuss the establishment of a sampling procedure for the reactivity testing of graphite designated for the "K" piles.

Assistance was given in designing an experiment to test the effects of percent copper, percent Al-Si, dip temperature, dip agitation, and dip time on certain characteristics of the bonding layer of canned slugs. After the determination of the critical factors an experiment will be designed for determining the optimum levels of these factors.

1 2 8 4 0 9 8

DECLASSIFIED

A straight line relationship was computed between slug power and weight loss for slug surface temperatures ranging from 80°C through 96°C. Tests were performed to determine if the same relationship held between slug power and weight loss for these various surface temperatures, as well as to determine independence of these two factors. (Letter to S. Goldsmith from Virginia Clark and F. H. Tingey, "Corrosion Rate Versus Slug Power for Different Surface Temperatures".)

Sample sizes necessary to detect given slug rupture rates with a given degree of confidence were provided the Pile Technology Sub-Section. (Verbal report from F. H. Tingey to L. W. Lang.)

A statistical study is now in progress, in an attempt to relate the tube wall thickness of a tube in which a slug failure has occurred to the distance from the upstream end of the tube.

Further consultations were held and initial work begun on the scoping of the organization and presentation of the data to be associated with the proposed 105-C test basin.

Roots of three-region pile criticality equations were obtained for the Theoretical Physics Group. Three different values of constant parameters were used in these equations, which involved four Bessel Functions. Work is in process on the determination of the roots of the fifth order pile period equation, corresponding to the five delayed neutron periods. The calculations will be done for 200 values of the effective multiplication factor, which appears as a parameter in this equation.

A large scale parameter study is being carried on for the Design Analysis Group. It is desired to know the pressure drop through the active zone of a reactor for a variety of values of outlet pressure, flow, power level, etc. The details of the problem required fitting analytic expressions to several steam table functions, such as enthalpy, internal energy, and viscosity.

Boltzmann's equation, which is being studied for the Theoretical Physics Group, is still in the process of solution. No particular difficulty has been encountered yet. Boundary conditions are being applied, requiring the evaluation of several determinants of orders up to six.

A three-digit power map and three-digit flow map were made from data taken from F-Reactor this month. These maps were prepared on a specially wired panel. In addition, the total flow of water through each crossheader, and the temperature rise of the water flowing through each crossheader were calculated.

Eighteen temperature maps from C-Reactor were processed this month to yield tube powers in the hot spot of the reactor.

Work is continuing on the solution of 5 simultaneous equations in connection with a new pile design problem. The solutions of these sets will yield information on physical parameters to be specified for two distinct reactor types: the conventional one, using internally cooled slugs, and a water-moderated pile loaded with solid slugs.

1204099

Study is continuing on the Monte Carlo solution to neutron diffusion problems. The basic advantage of the method in this problem is that much of the labor of analysis is completely bypassed. While very large amounts of computation are necessary to obtain the required accuracy, the calculations are of a nature which makes them ideally suited to the large scale electronic computing equipment now coming into general use. The latest and largest of these machines is the Electronic Data Processing Machine (701) manufactured by the International Business Machines Corporation. During April, IBM Service Bureau 701 in New York City was used to solve a neutron diffusion problem. Calculations were made for 760,000 collisions of neutrons with carbon and uranium nuclei. Each collision involved the computation of a logarithm, a cosine, two square roots, and a considerable amount of arithmetic and logical detail. The computing time for one collision was about one fiftieth of a second. Some 5200 complete neutron life histories were traced. Rough estimates place the cost saving at perhaps $50,000 over the cost of doing the same calculation on the Card Programmed Calculator. The time saving was well in the months. The results of these calculations are very encouraging, and the possibility of extending the scope of the original model is being seriously considered.

A study of the unit cost of 100-Area steam power generation has been initiated. In order to compare steam production in the different areas, the following calculations were requested:

1. Given gross and net steam produced at 100-B, 100-D, 100-F, and 100-H over a 21 month period, calculate the total steam production for all areas.
2. Given a cost of steam production at the above areas along with the total cost, calculate the unit cost per 1,000 pounds of steam for each area, for all areas, unit labor cost, and unit material cost.
3. The above calculations were made for each of the 21 months. The same calculations are to be made by six month intervals for the same period.

A statistical analysis of coating rates as a function of coat number was made for male and female pieces in the 234-235 process. An expression was found which adequately represented the relationship, and corresponding limits on expected values were determined.

A statistical analysis of data reflecting the effect on reduction and casting yield of several different operating conditions in the Pu recovery process in the 234-5 Building was made.

A statistical analysis was made of data pertinent to assessing the effect of simulated Purex waste solutions on corrosion and pitting of S.A.E. 1010 stainless steel. Correlations were computed, and their significance determined, between uniform corrosion rates and pitting corrosion rates for both polished and fine sand blasted steel. Probabilities of detecting critical differences of a given magnitude in weight loss and excessive pitting were computed for various exposure periods, (Secret Rough Draft from Virginia Leader to N. Endow, "Corrosion Effects of Simulated Purex Waste Solution on SAE 1010 Steel").

1204100

DECLASSIFIED

DECLASSIFIED

Critical counter differences for various capacitor leakage factors and various background rates were determined. Calibration curves relating observed total count to contamination level were derived and plotted. These curves will be used in conjunction with the monitoring device in the final stages of development by the Technical Section.

Determination of the precision to be associated with a single sample determination as reflected by past experience data was made for the Applied Research Sub-Section. (Verbal report from C. A. Bennett to K. Koyama.)

Statistical analysis continued on spectroscopic data to determine, for different levels of current and concentration, which carriers give the optimum emission of various impurities in uranium. The analysis of emission at the end of sixty seconds showed that the effect of concentration and current was multiplicative with current having the largest effect on emission. One of the impurities, calcium, appears to act independently of the others. Further work on these analyses will yield more information.

Consultations were held and sampling plans devised for determining the number of defective welds along a weld bead. This study was made in anticipation of the inspection plan to be carried out with regard to fabrication of the waste tank liners in the proposed Redox tank farm.

In connection with the study of the prism optical viewing system, the case of a stack of 15 prisms of graded density filling a 30° angle has been calculated. Used as an instrument for transmitting light, this model does not look too promising. However, the possibility of using reflected light from the model is receiving detailed attention.

Routine computations for the Engineering Department this month consisted of curve fitting to two sets of exponential pile data, Special Request exposure calculations, graphite conductance calculations for B-, DR-, and H-Reactors, and Group Nine Metal Study tabulations. Of some 11,650 active tubes in all piles, about 95% are now included in the Group Nine Metal Study. Since the study began, approximately 5000 tubes have been recharged. The cards representing these recharged tubes will not be removed from the deck until all tubes charged on a given date have been discharged. Thus, the monthly report involves the handling of some 15,000 cards. This number will grow steadily during the next year or so, at which time the number of cards to be handled levels off at around 30,000.

For Classified Files, data has been gathered for distributions of the number of documents by author and the number of documents retained by age. A study has begun on the procedures of the Technical Library. A minor procedural change was made in the routing of periodicals.

35 1/4 hours were spent on forms design for the Engineering Department.

Graphics work was started for the Technical Section in preparation of a Technical Data Book on Research and Development Progress. At present the work

1204101

DECLASSIFIED

includes only the development of a dummy layout showing in brief the subject matter and mechanics to be used in the final data book. Latest techniques in transparent overlay methods will be used.

Graphics work was started on nine large 30" x 40" illustrated training aids for P-10 Process Studies. Illustrations of valves, pumps, pipe lines, etc., include gas and liquid flow, and show valve and pump action by use of colored overlays. "Exploded view", phantom and cut-a-way techniques are being used.

Graphics work for Pile Technology - General involved layout, preparation of schematic drawings and photo retouch of eight plates for document HW-27535 titled "Salt Bath Heat Treating of Slugs".

Graphics work for Pile Technology - Testing included preparation of forty plates including twenty graphs and charts and mounting and retouching twenty photographs for a document titled "Evaluation of Audica Films on Process Tube Exteriors. Work was also completed in the layout, plotting and inking of six log-log charts on "Properties of Gasses versus Pressure Charts".

Graphic work for Pile Materials included work on a total of 115 plates, preparation of illustrations and schematic drawings, photo mounting and retouch, making overlays for captions and descriptive information for the following reports: 1) "Gas Evaluation from Normal Alloy of Varying Radiation Levels"; 2) "Final Report - Production Test 105-470P"; 3) "Cost, Trend and Effect of Range"(HW-27524); 4) "Radiography Production"; 5) "Space-time for X-3 Rods; 6) "Slug Jacket Corrosion Rates"; and 7) "Spechtrochemical Analysis-Weight Loss of Aluminum, etc."

The Graphics Unit prepared a large 30" x 40" illustration for Fuel Technology showing proposed steps in canning, inspection and storage. This visual aid was designed to be used in management and engineering discussions on proposed canning operations.

FOR THE PLANT AUXILIARY OPERATIONS DEPARTMENT

The final report on the Industrial Injury Study for the Safety and Fire Protection Unit was prepared, (report, "Industrial Injury Study, October, 1951 - September, 1952", by L. W. Smith).

At the request of the Safety and Fire Protection Unit, injury control charts have been prepared for the plant and all of the departments and sections that are large enough to warrant separate consideration. These charts, based on past performance, show the average monthly injury rate for the group of employees considered, and the limits of the normal variation in this rate. Also plotted on each chart are the actual monthly rates, starting with January of 1950, or as far back as data are available. By means of these charts a trend or a significant change in a group's underlying injury rate can be determined, and efforts can be directed by responsible persons toward finding a possible cause. A report will be written.

120102

Data obtained from the key punching control recommended during December and put into effect during January, (reference report, "Card Punching and Verification Studies", from L. G. Waters to H. Tellier) are presently being analyzed. Each Computing Unit routine work order is being considered separately. Two work orders completed to date are Salary Distribution and Weekly Salary Payments, (letters, "Key Punch Studies - Salary Distribution Work Order" and "Key Punch Studies - Weekly Salary Payments Work Order", from L. G. Waters to P. M. Thompson). The analyses of these work orders showed 1) that the average error rate was between three and four errors per 10,000 punches, indicating that the error control should be discontinued for the cost of the control would be more than the benefit derived from it, 2) that there defiritely is a difference between operators as far as making errors and punching speed is concerned, and 3) that the actual costs are significantly lower than the standard costs set-up. In the place of the error controls weekly controls on the punching and verification times were established. The analysis is continuing on the other routine work orders.

An IBM system is being set up for control over office machines. This system will accomplish the following:

1. Initiate a monthly rental charge for each machine to cover repair and maintenance costs.
2. Record for each machine where it is in use, when it was purchased, how much it cost and other such data.
3. Compute each month the actual repair and maintenance cost for each machine and the accumulative costs since acquisition.
4. Provide scheduling of machine inspections.
5. Provide data as required for the administration of a system of centralized control of office machines.

Some 40 IBM operating procedures in preliminary draft form were issued by the Procedure Unit to the Computing Unit.

A time recording clock was installed in the Computing Unit for recording of start and stop time on IBM machine operations. The first reports were prepared on weekly payroll preparation measuring the actual time required for each machine operation against the computed standard time. These reports highlight operating difficulties, in a manner that corrective steps can be taken promptly.

In connection with the 200-W Laundry Survey, eighteen individual problems are being developed. Solutions to nine of these problems have been approved and are in the process of installation. Possible solutions to nine of the problems have been approved in principle and are now in the process of development. There has been two committees established to assist in development work 1) Customer Relations, six members, 2) Wash Formula Testing, six members. Instrument Development is making excellent progress in the design of a mechanical monitoring device.

Routine transportation and stores procurement actions reports were prepared.

DECLASSIFIED

1208103

[redacted]SSIFIED

37 3/4 hours were spent on forms design for the Plant Auxiliary Operations Department .

Graphics work for the Plant Auxiliary Operations Department included layout, plotting and inking of eight Industrial Injury Study Charts; plotting of April data to plates for the 300 Area Statistical Quality Report; making revisions and plotting April data to the Monthly Accident Statistics Report; and preparation of varied charts and graphs.

FOR THE COMMUNITY OPERATIONS & REAL ESTATE DEPARTMENT

Consideration is being given to the possibilities of changing electric billing from a monthly billing to a cycle billing plan. Final action on the proposal has been postponed pending more detailed cost estimates of various systems.

4 1/2 hours were spent on forms design for the Community Operations and Real Estate Department.

FOR THE RADIOLOGICAL SCIENCES DEPARTMENT

Determination of total amounts fed and their corresponding precision in the second phase of the experiment dealing with the deposition of Pu in the various body tissues of rats was made. Data is now being received and analyzed relative to the deposition.

An analysis was performed on the preliminary gravimetric results for the amount of plankton in the Columbia River at 100-B Area, Hanford, Richland and McNary Dam. The analysis was made between dates at which the measurements were taken and locations across the River for each position. There was a significant difference in the amount of plankton between dates for all positions on the River. The location across the River also seemed to cause a significant difference in the amount of plankton.

A tremendous amount of sampling data is presently being recorded and analyzed by the Control Unit of the Radiological Sciences Department. Conferernces have been held with Radiological Sciences personnel to ascertain the advisability of processing the daily routine calculations and monthly and quarterly summarization by machine. It has been estimated that the present method of manual recording and computing requires 2100 man hours at a cost of $8400 over a three month period. The Computing Unit could do the same work in 320 man hours at a cost of $1400. (Letter from C. E. Thompson to F. E. Pilcher, "The Adaptability of High-Speed Computing Equipment to Work Being Done in the Regional Survey.Sampling Program.")

Routine computations for the Radiological Sciences Department this month consisted of the monthly weather and wind studies, Thyroid and Radioanalysis calculations, and Aquatic Biology calculations.

Graphics work for the Radiological Sciences Department included preparation of nine plates for slide purposes to be used in discussions in Biophysics seminar; layout of a booklet covering suggested radiation protection practices for personnel traveling to off-site plants where radiation hazards exist; and preliminary work was started on a perspective cut-a-way drawing of the Redox Plant which will show various floor levels, etc., and be used to trace radiation patterns.

16 1/2 hours were spent on forms design for Radiological Sciences Department.

FOR THE MEDICAL DEPARTMENT

Absenteeism control charts were prepared for additional departments and sections having a sufficient number of personnel and not previously supplied with a chart. These charts show the expected value and the limits of the expected variation of each month's absenteeism rate for the group of employees considered. The actual monthly absenteeism rates are also plotted on the charts, and their position in relation to the expected rate and the control limits indicates when an investigation of absenteeism in that group is warranted. Charts will be sent to the following departments and sections after final preparation by the Graphics Unit:

Engineering Department
Design Section
Project Section
Manufacturing Department
Reactor Section
Metal Preparation Section
Radiological Sciences Department
Employee & Public Relations Department
Community Operations & Real Estate Department
Community Operations Section

This list and that one reported last month conclude the list of departments and sections for which it was possible to prepare absenteeism control charts.

Six slide plates consisting of charts and graphs were prepared by the Graphics Unit for the Medical Department Director to use in a recent lecture.

Routine Public Health activities reports were prepared.

18 1/4 hours were spent on forms design for the Medical Department.

FOR THE EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

A brief survey was conducted by the Statistical and Procedures Units of the possibilities of utilizing IBM equipment to aid in the selection of employees for promotions. There are now at least six different IBM card files containing data relative to personnel. No attempt has been made to estimate the number of different manual files which contain personnel information. It became obvious that a centralized IBM file was needed in which will be recorded all the

[redacted]

1204105

DECLASSIFIED

various needed data relative to each employee. This centralization should result in elimination of duplication of effort and easily make available a wealth of information which is now unknown or secured at a high clerical cost. Key punching has been completed on the file of all employees. In addition to data such as birth date, marital status, etc., the card will show for each employee three occupational qualifications other than the current job classification and the number of years experience for each qualification. These cards will make possible the locating of persons with experience in fields other than those in which they are currently employed.

Work has continued in the preparation of 1953 salary survey data for tabulation and statistical analysis. The first phase of the machine work has been completed. The data has been key punched, the salary rates and length of service calculated and the results listed. Routine salary administration reports have been prepared.

A study is being made for Personnel Practices to evaluate the effectiveness of judging prospective employees by means of various tests, and to determine the reliability of predicting future performance of employees through use of these tests.

Work is continuing on the study of employee separations. The final computations necessary for a complete statistical analysis are presently being performed by the Computing Unit. This analysis will point out important factors underlying terminations and deactivations within each department, as well as the plant as a whole. A statistical test has shown that the rate of employee separations differs significantly by departments.

A list of exempt Good Neighbor Fund deductions was prepared.

9 hours were spent on forms design for the Employee and Public Relations Department.

FOR THE FINANCIAL DEPARTMENT

A new procedure is being developed for distribution of the exempt salary roll. Under the new method, planned overtime will be accrued at an average rate and distributed against the current month's cost codes. The following month when overtime is paid, the accrual will be reversed and the amount paid will be distributed against the prior month's codes. This way, payment will be distributed in the same proportions that hours were worked during the month the overtime occurred.

A new method has been developed to prevent the disclosure of exempt persons' earnings from the cost distribution. In the past the Payroll Unit has distorted earnings by manually cutting from the printed report the true amounts and inserting a fictitious amount. The new method will be accomplished by distorting the earnings by an IBM card. This method will simplify the operation and exempt salary costs will be available for cost reports at an earlier date.

1204106

DECLASSIFIED

The project of computing the average weekly number of hours worked by each non-exempt employee during the period of April 1, 1952 through March 31, 1953 was completed and delivered on schedule. After the necessary audit work has been completed by the Payroll Unit the final report will be run.

A study is being made to determine if certain records and files on non-exempt employees maintained by the Payroll Unit and various Units of the Employee and Public Relations Department could be consolidated. This same consideration is to be given to records and files on exempt employees.

Non-exempt personnel who are members of bargaining units were paid a 1.75% increase retroactive to March 16. Retroactive payment was made concurrently with the change of rate.

A new IBM procedure was developed to establish section control totals for non-exempt labor cost while the detail cost cards are in payroll number sequence. These totals will lead to the organizational group out of balance in the event that labor costs do not balance in total after the sequence has been changed from payroll number to servicing unit.

A new and more efficient method of calculating non-exempt payroll earnings was installed. This method of calculation has reduced the number of machine operations by eight and will assure greater accuracy.

A distribution was prepared of employee insurance deductions by sex, age and amount.

Machine preparation of the payroll deduction bond savings procedure was initiated. Savings deductions are accumulated for each participant until they are sufficient to purchase a bond, whereupon the proper bond for purchase is indicated and any balance is carried forward.

A 1.79% base rate increase and the corresponding retroactive payments were calculated and included in the checks of May 8.

A summarization of payroll data from April 1, 1952 to March 31, 1953 was made to provide the basis for determining vacation payments under the new policy. The summarization involved over 300,000 IBM cards.

A list of personnel authorized to sign Work Orders was prepared, and a trial list for a possible accounts payable machine application was made.

16 1/4 hours were spent on forms design for the Financial Department.

FOR THE ADMINISTRATIVE STAFF

A study was completed to determine the sample size that would be necessary if disks are to be dissolved and analyzed to measure the amount of U^{235} received in fuel disks for the test reactor (document HW-28147, "Measurement of Fuel Disk U^{235} Content by Sampling", from N. D. Peterson to C. J. Shortess, Jr., May 21, 1953). Included was a graphic presentation of the relationship between

1204107

evaluation error and sample size. Consideration was given to variations in measurement error and in the quantity of material in each disk.

Another study of sample size now in progress concerns material remaining as slag and crucibles after the fabrication of plutonium buttons in Building 234-5. Investigation is nearing completion of the sample sizes necessary in order to achieve various degrees of precision if the total quantity of this material is to be estimated by an off-site measurement of a sample. The residues appear to follow a logarithmic normal distribution. The large variability in the material may necessitate satisfaction with quite sizable imprecision unless a very large sample is used.

A preliminary report was submitted on the various methods by which the amount of paper work at Hanford could be alleviated. The following fields to study were suggested:

1. Follow-up of the Attitude Survey
2. Forms Control
3. Procedural Analysis
4. Personnel Records
5. Classified Files
6. Communications

It was indicated in the attitude survey made by Richardson, Bellows, Henry and Company, Incorporated that supervisors have to spend too much time on unnecessary paper work. In order to probe this matter further the survey firm has been contacted to supply data which will be analyzed to determine what class of supervisors have this attitude. According to the results obtained from the analysis, a sampling plan will be devised and a randomly selected portion of supervisors interviewed to determine what types of paper work are considered unnecessary.

A survey is being made of all existing forms (some 3000) to classify them by subject as an aid in the program to alleviate paperwork at Hanford.

FOR THE ATOMIC ENERGY COMMISSION

Routine vehicle quarterly reports were prepared.

Preliminary work was done on a special metal quality report for the AEC. Data on all metal received from Mallinckrodt since January, 1952 will be processed to yield variations in spectro and chemical analyses between heats, lots, and months of production. These variations will be correlated with changes in the production process as reported by Mallinckrodt.

DECLASSIFIED

1204108

Graphics work for the AEC required preparation on a rush basis of five production progress and cost reduction charts to be used by the Manager in a Budget Review meeting in Washington, D. C.. Other work for the commission included completion of a site plan of the Purex facilities covering location of water, waste, process and power lines. Revisions and additions were also made to plot plans and a number of control charts for the Engineering and Construction Office.

The Graphics Unit designed and completed a telephone book cover for the Office Services Section of the Kaiser Construction Company.

SUMMARY

During the month of May 126 statistical, procedural, computational and graphical problems were completed, and as of May 31 a backlog of 324 problems were on hand.

1204109

Department Serviced	Percent of Services Rendered				
	Units				Statistical & Computing Section
	Statistics	Procedures	Computing	Graphics	
Manufacturing	27	6	5	26	9
Engineering	22	13	26	41	26
Plant Auxiliary Operations	15	33	3	8	8
Community Operations & Real Estate	1	1	0	1	-
Radiological Sciences	10	2	2	5	3
Medical	0	1	0	1	-
Employee & Public Relations	7	3	4	1	4
Financial	0	40	57	6	44
Administrative Practices	6	0	0	0	1
Atomic Energy Commission	12	1	3	11	5
TOTAL	100	100	100	100	100

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

SUMMARY -- MAY, 1953

The number of applicants interviewed in May was 1,169, as compared with 1,066 for April. In addition, 98 new applicants applied by mail. Open, nonexempt, nontechnical requisitions increased from 217 at the beginning of the month to 227 at month end. Eighty-six employees were added to the roll and 124 removed during the month. Separation rate decreased from 1.35% in April to 1.25% in May. During May, 51 new requests for transfer to other type work were received by Employment and 45 transfers were effected. Attendance recognition awards were distributed to 160 employees in May, including 40 employees who qualified for three-year awards.

One employee died during the month and two employees retired. One hundred and eighty one visits were made to employees confined to Kadlec Hospital and 86 checks were delivered to employees confined at the Hospital or at home. At month end, participation in the Pension Plan was 95.3%, and in the Insurance Plan 98.8%. At month end there were 817 registered under Selective Service and 763 military reservists were on the roll. Since August 1, 1950, 281 employees have terminated to enter military service, of which 62 have returned, 6 have not claimed reemployment rights, leaving 213 still in military-leave status.

Orientation of new employees was presented daily throughout the month. A total of 62 employees attended this program. Of this number, 95.1% have signed up to participate in the Pension Plan, 100% in the Insurance Plan, and 72.5% in the Good Neighbor Fund.

Seventy-seven adopted suggestions were approved by the Suggestion Committee for awards during the month totaling $1,345.

On May 14 the Employment representative for Women's Activities addressed 85 high school girls at Sunnyside, Toppenish, Grandview, and Prosser, Washington. Eight indicated interest in GE employment. Then on May 18 and 19 she visited various schools located in Yakima, Washington, and vicinity. She addressed 97 graduating seniors, 25 of which indicated interest in GE employment. Also on May 18 and 19, she interviewed 32 applicants at the office of the Employment Security Department, 17 of which appeared to be good employment prospects.

A film entitled "Retire To Life" was obtained during the month to be shown to all employees approaching retirement age.

During the month arrangements were made to eliminate use of sales slips for the purchase of traffic appliances. Effective June 1, the sales will be made by authorized dealers without sales slips, but upon proper identification as a GE employee.

1204111

Employee and Public Relations
Summary

The HAPO Manpower Committee will for the time being review more critically individual cases being considered for deferment as it is felt that there are a sufficient number of scientists, engineers, and others in critical classifications to adequately carry on the work of the Project.

Those GE items which have been purchased for employees through the Seattle source which are not available through the local dealer will henceforth be purchased through GE Supply, Portland, Oregon, with the exception of photographic equipment and any motors of one horsepower or over. These latter items will continue to be ordered from Seattle.

The matter of establishing a Service Center for the Tri-City Area has been fully explored and the conclusion reached that there is insufficient potential business in the area to support such an establishment.

Training and Development programs and activities for May, 1953, were as follows: Management Orientation was offered on Monday, May 4, with 11 in attendance. Labor Management Relations program was conducted on Wednesday, May 6, with 21 supervisors present. Policy Panel Seminar was conducted from Monday, May 25, through Friday, May 29, with 19 supervisors participating. Principles and Methods of Supervision - Group #48 was attended by 18 supervisors and Group #49 by 20 supervisors. Both groups completed the conferences on Friday, May 22, having started on Monday, May 11. PMS Refresher was scheduled for Monday, May 25. Seven supervisors attended the meeting at Hanford High School; however, the meeting in Richland was cancelled due to insufficient enrollment. Conference Leading was conducted on Tuesday, May 5, with 20 supervisors participating. Management Conferences on Human Relations Groups #5 and #7 completed the series of three conferences on Wednesday, May 6, and Wednesday, May 13, respectively. Professional Management Development - On Tuesday evening, May 5, a summary of the G.E. 9-Point Job was presented to 13 supervisors; and on Tuesday evening, May 19, the Labor Law sound-slide films and a short discussion period was offered with 32 supervisors present. Management Panel Forum - On Thursday evening, May 14, the subject of "On-The-Job Training" was discussed with 11 supervisors attending. On Thursday evening, May 28, the subject was "Why People Act As They Do" and 22 supervisors attended. Supervisors Handbook - At the end of May, 1338 handbooks had been issued. Secretary-Steno program - On Tuesday, May 12, a group of 15 secretaries and stenographers evaluated a proposed program to be given to incoming groups of secretarial and stenographic personnel. Customer Relations program was presented on Thursday morning, May 14, and on Thursday morning, May 21, to groups of approximately 15 non-exempt Radiological Sciences personnel. SAGE bulletin was distributed on May 19 and May 29. Dr. Ted Nahow, Training Director for KAPL, spent May 26, 27 and 28 with the Training and Development group in reviewing the training activities at this project.

The first two issues of a new communications media, the "Management NEWS Bulletin," were written, produced and distributed. The first issue presented high-lights of the changes in the recent negotiated GE-HAMTC Agreement. The bulletins will be

distributed periodically and will carry information of interest to members of management in an abbreviated style.

The emergency message procedure, whereby messages of immediate importance are transmitted by telephone through the Departmental channels, was utilized for the first time in informing members of management of the outcome of the representation election among Reactor and Separations Sections chief operators.

Arrangements were made for the distribution of employee attitude survey reports to all HAPO employees. This involved production of a letter to management from the Manager, Employee Relations, and an Employee News Letter signed by the General Manager.

The seventh in a series of GE NEWS messages on the 9 points of a GE job appeared in the May 15 issue. It concerned "Good Working Conditions."

75th Anniversary promotion included initiation of a series of articles on Company policies. "Policy" articles appeared in four issues, and covered vacations, absences, and tardiness. A series of articles on Company history was concluded during the month. One of the articles, on development of the turbine, was tied in with a current syndicated article revealing largest turbine ever developed has been ordered from GE. An old time picture of the first turbine from an old GE source file was included to round out the whole feature.

At the request of Community Council, the GE NEWS is publishing a series of articles provided by the Council to keep Hanford people informed on community matters affecting possible future incorporation.

Change in GE Purchase Plan procedure was publicized to advise employees that certificates are no longer required to purchase traffic appliances under the plan.

Employee meetings, which improve communications, will be covered by the GE NEWS. The first picture of one of these meetings was published in the last issue of the month.

A total of 34 releases were distributed during the month. Of these, 15 were sent to the "local" list and radio stations. Six were sent to media throughout the Northwest, one to an employee's hometown paper, and 12 received special distribution.

Work has been completed on the series of articles which ran in the Columbia Basin NEWS that described the services General Electric provides the community. It is felt that this series pointed out that General Electric has been providing about average community service for average cost. The series also made clear that the level of services available after incorporation will depend upon any subsidy made available by the Government and the level of service that the residents are willing to pay for through taxation. It also will have been made clear that General Electric will have nothing directly to do with the level of community services after incorporation.

1204113

Employee and Public Relations
Summary

Nine letters were sent to school students who requested information on Richland and Hanford. The comic book, "Adventures Inside the Atom," and the Richland and Hanford fact sheets were enclosed with each letter.

Assistance was given to the Tri-City hospital council in publicizing National Hospital Week for the tri-cities.

Promotion work was completed on the Cancer Drive, Kadlec Hospital Open House, and Visitor's Week at the Richland Fire Department.

Representatives of Public Relations participated in a meeting held at Richland by Associated Press personnel and personnel of radio stations in the Northwest that subscribe to A.P. news service. Contacts made during this meeting with both A.P. and radio stations personnel have resulted in some changes that will be made in the releases sent to certain radio stations.

A field editor for Outdoor Life magazine visited Public Relations and requested a story on the Company's work with aquatic biology here at Hanford. It was explained that a local free lance writer is preparing such an article to be submitted to an outdoor magazine. If this writer does not sell this article we will contact Outdoor Life.

A request was received from one of the local papers concerning the Employee Attitude Survey and a release concerning the results of the survey was sent to local media and to business editors and business publications throughout the Northwest.

The Community Newsletter for May was mailed to all community leaders in Pasco, Kennewick and Richland.

Eleven papers were cleared for presentation and/or publication during the month, five of which were in abstract form.

Seven local and regional presentations were made by Hanford speakers during the month.

A total of 179 photography assignments were filled during the month, producing a total of 21,982 prints, of which 20,508 were "A" and "B" badge prints. Area and news work consisted of 1,474 prints.

A preview of the workprints on the motion picture being produced for Engineering Department and the Atomic Energy Commission on Expansion Program subjects was held on May 6, 1953, for members of those organizations. Complete harmony and agreement were expressed by both groups and plans for producing some preliminary finished reels were laid following the showings.

1204114

Employee and Public Relations
Summary

Three groups, totaling 101 people, whose jobs involve making duplimat masters and repairing typewriters, have recently reviewed the slidefilm, "It's Just Knowing How," produced for Plant Protection Section. Comments received from that Section's management revealed that the slidefilm is proving to be extremely helpful and that the technical detail is well portrayed.

The Supervisor of Radio & Special Events and the Supervisor of Photography conferred with executives and production staff members of W. A. Palmer Films, Inc., at San Francisco. These people provided constructive criticism on motion picture production techniques, camera work, lighting, and direction during the screening of over 5000 feet of workprint film recently exposed by us. In addition to our knowledge of production from completed films, the information obtained will provide improvements in direction and photography which will lead to shortcuts and cost-saving procedures in production of the 100-K documentary-training motion picture for Design Section, and the Expansion Program training-documentary motion picture being produced for the Atomic Energy Commission.

Arrangements were made for an "on-the-spot" recording of a conducted tour through Kadlec Hospital for broadcast over Radio Station KALE prior to the Open House on May 13.

Arrangements were made for special showings of the sound slidefilm, "Shall Not Perish", produced by this section for Hanford District Civil Defense, for a part of Camp Hanford's Armed Forces Day program, May 16.

The program for the systematic interviewing of significant segments of the employees in each section and department was gotten well under way during May. Salary Administration Section is making this series of interviews to determine the extent of conformance of the employees to their described positions. Evaluation of established positions is up to approximately 75% of current basis at month end, in preparation for publication of the revised "Position Description Manual."

All contacts have been completed for the 1953 National and West Coast Salary Survey of exempt employees. Forty of 47 companies have already submitted their data and it is being analyzed and processed as received.

During May the Salary Administration Section assumed responsibility for maintaining and publishing the Organization Directory. This more fully rounds out the area of responsibility in analysis and control of organizational structure.

The preparation of the salary brochure for orienting exempt employees on the Hanford salary administration plans has been temporarily tabled.

1204145

Employee and Public Relations
Summary

Since spring recruiting for M.S. and B.S. candidates at the college is completed, we are studying the outlook for the coming fiscal and academic year. It is well established that both numbers and quality of technical graduates available to industry will suffer severly due to inroads of the college ROTC programs which are planned to take 48 percent of all 1954 engineering graduates. We are making up packets of material for college placement offices to attract returning veterans, also revising our recruiting leaflets for such new graduates as will be available.

There are now six tentative openings for Ph.D.s, and candidates are under consideration for five of these positions.

Considerable effort will be needed to fill the five major positions which are open with experienced engineers. We are planning advertising, attendance at professional conventions, and the contacting of certain college alumni placement offices. Other less prominent positions are being filled by internal transfers.

There were 8 resignations, 2 transfers to other Divisions, and 4 transfers within HAPO during the month. In four other cases employees have been persuaded to remain in their present positions under satisfactory basis. Continuing last month's report, all of the chemists currently available from the Separations Process Unit of Manufacturing have been well placed elsewhere in the plant.

An independent survey of the School of Nuclear Engineering, conducted by Miss Lomen, disclosed that most of the students feel that the School serves a valuable purpose and meets their requirements.

It now appears possible to offer by correspondence a considerable variety of college-level courses available from various Universities. To remedy the usual weakness of correspondence study, counselors in various major fields could be made available to meet with interested students each week at small additional expense. Details of such a program are being worked out.

The seventeen local college alumni groups, formed over recent years at the instigation of this office, have all been activated to receive the new graduates who will be arriving from their respective schools. The names of the new Technical Graduates have been given to the proper professional societies so that the interests of these man can be solicited. We are working closely with the Community Department toward grouping the new Technical Graduates in the Richland dormitories.

An invention report, developed jointly with F. B. Quinlan of the Engineering Department and covering a new method of slug manufacture, has been filed. We were able to give some assistance to the Engineering Department in a problem involving torsional oscillation in a large motor application. A proposal on Management Development Study has been submitted which would complement rather than compete with present supervisory training programs.

1204116

Employee and Public Relations
Summary

Agreements with the HGU and the BSEIU were executed on May 8, to become effective May 16, 1953. On the same date, the Agreement with the HAMTC was signed by the Business Representative, subject to ratification by affiliated locals. Formal ratification was received on May 28. An amicable settlement short of arbitration was accomplished in connection with the HAMTC's demand for arbitration of fifteen Instrument grievances, subject to approval of Guild membership. As the result of a NLRB-conducted election on May 26 and 27, the Chief Operators voted against representation by the HAMTC. Adjustment was made of the salary grade of thirteen Engineering Assistants as the result of a grievance submitted by these employees.

The special panel appointed by the FMCS submitted a recommendation for future assignments of work to Machinists and Millwrights on Kaiser Engineers' payroll. Twenty-three Machinists in 2101 Building walked off the job on May 27 in protest over an assignment of work to the Millwrights and when the assignment was retracted the following day, the Millwrights walked off the job. The Building Trades Council has filed a protest with AEC, charging the Cisco Construction Company with a violation of the Davis-Bacon Act.

A request for reimbursement authorization was submitted to AEC covering the recently negotiated agreements with the HAMTC, BSEIU, and HGU. Eleven meetings were held during May with representatives of the various labor locals in connection with classifications, rates, etc. A study of work performed by individuals classified as Stenographers was completed. A revised hiring policy for inexperienced and experienced stenographers was established.

1204117

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

MAY, 1953

ORGANIZATION AND PERSONNEL

General

There were no organizational changes during May.

Employee Relations

Effective May 1, 1953, Evelyn Isaacson, Stenographer, terminated.

Effective May 4, 1953, Dorothy Eno, Secretary C, was upgraded to Secretary B.

Public Relations

Effective May 1, 1953, D. L. Usher, Publicity Writer, terminated voluntarily.

Salary Administration

Effective May 13, 1953, Elna J. Armstrong, General Clerk B, was deactivated for personal illness.

Technical Personnel

Effective May 25, 1953, Esther Sevcik, Stenographer, transferred to Metal Preparation Section from Manufacturing Department.

Trainees - Beginning of Month 73 - End of Month 66

Net Change:	Placements in departments	8
	Resignations	1
	New Hires	1
	Re-engagement	1

Union Relations

Effective May 1, 1953, J. N. Dupuy, Manager, Union Relations, transferred to New York Office.

Effective May 1, 1953, C. J. Sheeran, Staff Assistant, transferred from Separations Section, Manufacturing Department, to Union Relations.

Effective May 1, 1953, A. J. Scott, Staff Assistant, transferred from Wage Rates to Radiological Sciences Department.

Effective May 4, 1953, Ramona G. Henderson, General Clerk B, returned to Wage Rates from leave of absence.

Number of Employees on Roll	May, 1953
Beginning of Month	207
End of Month	196
Net Change	-11

Employee and Public Relations

EMPLOYEE RELATIONS

Personnel Practices

Employment	April, 1953	May, 1953
Applicants interviewed	1,066	1,169

364 of the applicants interviewed during May were individuals who applied for employment with the Company for the first time. In addition, 98 applications were received through the mail.

Open Requisitions	April, 1953	May, 1953
Exempt	3	5
Nonexempt	217	227

Of the 217 open, nonexempt, nontechnical requisitions at the beginning of the month, 103 were covered by interim commitments. Of the 227 open, nonexempt, nontechnical requisitions at month end, 136 were covered by interim commitments. During May, 100 new requisitions were received requesting the employment of 152 nonexempt, nontechnical employees.

	April, 1953	May, 1953
Employees added to the rolls	77	86
Employees removed from the rolls	113	124
NET GAIN OR LOSS	-36	-38

Of the 124 removed from the rolls, none were removed due to lack of work.

Separation:

	Fiscal Month April, 1953		Fiscal Month May, 1953	
	Male	Female	Male	Female
Including employees who were laid off for lack of work	1.04%	2.64%	.83%	3.02%
Excluding employees who were laid off for lack of work	1.04%	2.64%	.83%	3.02%

Over-all Separation:

	Fiscal Month April, 1953	Fiscal Month May, 1953
Including employees who were laid off for lack of work	1.35%	1.25%
Excluding employees who were laid off for lack of work	1.35%	1.25%

1204119

Employee and Public Relations

EMPLOYEE RELATIONS

During May, 22 employees left voluntarily to accept other employment, 2 left to enter military service, and 7 left to enter business for self.

Transfer Data

Accumulative total of requests for transfer received since 1-1-53	252
Number of requests for transfer received during May	51
Number interviewed in May, including promotional transfers	61
Transfers effected in May, including promotional transfers	45
Transfers effected since 1-1-53, including promotional transfers	202
Transfers effected in May for employees being laid off	7
Number of stenographers transferred out of steno pool in May	3
Transfer requests active at month end	274

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Community Firemen	Total
New Hires	2	54	1	57
Re-engaged	--	--	--	--
Reactivations	2	27	--	29
Transfers	--	--	--	--
TOTAL ADDITIONS	4	81	1	86

TERMINATIONS FROM THE ROLLS

	Exempt	Nonexempt	Community Firemen	Total
Actual Terminations	8	62	--	70
Removals from rolls (deactivations)	6	44	--	50
Transfers	3	1	--	4
TOTAL TERMINATIONS	17	107	--	124

GENERAL

	4-1953	5-1953
Photographs taken	318	402
Fingerprint impressions	114	112

1204120

Employee and Public Relations

EMPLOYEE RELATIONS

PERSONNEL SECURITY QUESTIONNAIRES PROCESSED

	4-1953	5-1953
General Electric Cases	105	87
Facility cases	24	25
TOTAL	129	112

INVESTIGATION STATISTICS

	4-1953	5-1953
Cases received during the month	112	164
Cases closed	179	122
Cases found satisfactory for employment	121	119
Cases found unsatisfactory for employment	1	5
Cases closed before investigation completed	3	12
Special investigations conducted	14	5

PERFECT ATTENDANCE RECOGNITION AWARDS

Total one-year awards to date since January 1, 1950	5925
One-year awards made in May for those qualifying in April	64
Total two-year awards to date since January 1, 1950	1498
Two-year awards made in May for those qualifying in April	56
Total three-year awards to date	398
Three-year awards made in May for those qualifying in April	40

During May, 29 people whose continuity of service was broken while in an inactive status were so informed by letter.

On May 14 the Employment representative for Women's Activities addressed 85 high school girls at Sunnyside, Toppenish, Grandview, and Prosser, Washington. Many of these young girls plan to continue their formal education and some will take jobs locally; however, three indicated definite interest in GE employment as stenographers and five as laboratory assistants. Then on May 18 and 19 she visited St. Joseph's Academy, Yakima High School, Highlands High School, Moxee High School, and Yakima Jr. College; all of these schools being located in Yakima, Washington and vicinity. She addressed 97 graduating seniors at these various schools, 25 of which indicated interest in GE employment; 12 as stenographers and 13 as laboratory assistants. On the same dates she interviewed 32 applicants at the office of the Employment Security Department, three of which were acceptable as stenographers and 14 represent good prospects as laboratory assistants. In conjunction with the recruitment in Yakima, advertisements were run in the Yakima REPUBLIC, May 16 and 18, and the Yakima HERALD, May 16, 17, and 19, for stenographers and laboratory assistants. In addition to those who applied in person at the Employment Security Department, five written inquiries were received.

120121

Employee and Public Relations

EMPLOYEE RELATIONS

Employee Benefits

The following visits were made with employees during the month:

Employee contacts made at Kadlec Hospital	181
Salary checks delivered to employees at Kadlec Hospital	70
Salary checks delivered to employees at home	16

At month end participation in Benefit Plans was as follows:

	April	May
Pension Plan	95.2%	95.3%
Insurance Plan	98.9%	98.8%

One employee died during May, namely:

Marvin B. Wilde, W-16230-522, Engineering

Twenty-seven letters were written to deceased employees' families during May, concerning payment of monies due them from the Company, and also to answer their questions.

Since September 1, 1946, 120 life insurance claims have been paid totaling $ 743,513.

Two employees retired during May, namely:

Obid A. Rea, W-8405-944, Normal Retirement
Leonard L. Whitwer, W-3455-410, Normal Retirement

During May, 19 letters were written to retired employees providing them with information of general interest. To date 253 employees have retired at Hanford of which 132 are continuing their residence in the vicinity.

Orientation of new employees was presented daily throughout the month. A total of 62 employees attended this program. Of this number, 95.1% have signed up to participate in the Pension Plan, 100% in the Insurance Plan, and 72.5% in the Good Neighbor Fund.

A film entitled "Retire To Life", produced for the University of Oklahoma, has been received and arrangements are being made to show this film to groups of our employees who are approaching retirement. It is further planned to utilize this film in connection with the first pre-retirement contact with women employees when they reach age 54, and men when they reach age 59.

1204122

Employee and Public Relations

EMPLOYEE RELATIONS

By month end 20 locations throughout the plant were established at which will be maintained catalogs giving descriptions, prices, etc., of most major appliances. This will assist employees in making selections. Effective June 1 major appliance sales slips may be initiated through these 20 representatives who will also be responsible for maintaining the catalogs. This is another change to make it more convenient for employees to purchase GE merchandise. Another move in this direction is to eliminate use of sales slips for the purchase of traffic appliances. Effective June 1, the sales will be made by authorized dealers without sales slips, but upon proper identification as a GE employee.

The HAPO Manpower Committee will for the time being review more critically individual cases being considered for deferment as it is felt that there are a sufficient number of scientists, engineers, and others in critical classifications to adequately carry on the work of the Project.

Those GE items which have been purchased for employees through the Seattle source which are not available through the local dealer will henceforth be purchased through GE Supply, Portland, Oregon, with the exception of photographic equipment and any motors of one horsepower or over. These latter items will continue to be ordered from Seattle. GE Supply, Portland, will supply a complete list of those items which may be available to our employees through this special source, and it is our understanding that this will include construction materials.

The matter of establishing a Service Center for the Tri-City Area has been fully explored and the conclusion reached that there is insufficient potential business in the area to support such an establishment.

As a further service to employees, arrangements have been made for bulletin-board postings of commuters seeking rides and riders at Yakima, Prosser, and 300-Area Barricades.

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		763
Number of reservists classified in Category A	122	
Number of reservists classified in Category B	61	
Number of reservists classified in Category C	77	
Number of reservists classified in Category D	503	
Number who returned to active duty to date		217
Number who returned to active duty in May		1
Number of reservists for which delays have been requested		46
Number of reservists classified in Category B	4	
Number of reservists classified in Category C	3	
Number of reservists classified in Category D	39	

1204123

Employee and Public Relations

EMPLOYEE RELATIONS

Delays requested (including renewals)	114
Delays granted	106
Delays pending	0
Delays denied	5
Delay requests recalled	3

The statistics with respect to employees registered under Selective Service are as follows:

Employees registered		817
Employees registered who are veterans		281
Employees registered who are non-veterans		536
Deferments requested to date (including renewals)		985
Deferments granted		741
Number of employees for which deferments have been requested		232
Number of employees classified in Category B	3	
Number of employees classified in Category C	1	
Number of employees classified in Category D	228	
Deferments denied and appealed at state levels		8
Deferments denied and appealed at local levels		0
Deferments denied and held pending appeal at national level		1
Deferments denied by local board and not appealed		2
Deferments denied by state board and not appealed		20
Deferments denied at national level (by Gen. Hershey's office)		2
Deferments denied at national level (by President)		5
Deferments requested, employees later reclassified		82
Deferments requested, later withdrawn		71
Deferments pending		53

Military terminations since 8-1-1950 are as follows:

Reservists recalled	126
Selective Service	151
Women employees enlisted	4
TOTAL	281

Employees returned from military service:

Reservists	48
Selective Service	14
TOTAL	62

Known number not claiming reemployment rights	6
Number of employees still in military-leave status	213

120124

PRIVACY ACT MATERIAL REMOVED

Employee and Public Relations

EMPLOYEE RELATIONS

Suggestion System, Workmen's Compensation and Liability Insurance

	April	May	Total Since 7-15-47
Suggestions Received	180	181	11590
Acknowledgements to Suggesters	188	202	
Suggestions Pending Acknowledgement	38	17	
Suggestions Referred to Departments for Investigation	188	202	
Suggestions Pending Referral to Departments	38	17	
Investigations Completed & Suggestions Closed	305	184	
Suggestions Adopted - No Award	5	1	
Adopted Suggestions Approved by Committee for Award	73	77	
Total Net Cash Savings	$12,870.52	$10,917.48	
Total Cash Awards	1,980.00	1,345.00	

As of month end there were 697 suggestions out for investigations.

The highest award of $250 was made to an employee in the Real Estate Maintenance Section for his suggestion regarding a new method of repairing screen doors. This suggestion resulted in considerable labor and material savings.

An employee in the Separations Section received the second highest award in the amount of $160 for his suggestion for using a M. S. A. can and assault mask can in series for all low count S. W. P. jobs, in place of Chemox units. This suggestion resulted in material savings.

Workmen's Compensation

Two hearings were held on Workmen's Compensation during the month.

Liability Insurance

The above action arose out of damages to property and personal injuries when a bus operated by a employee smashed into the residence. The bus driver was determined to have died of a heart attack while driving the bus. The case was tried on March 4, 5, and 6 and the jury awarded a verdict of $4,904 to $1,000 to their daughter, and $9,000 to their daughter, , resulting in a total verdict of $14,904.00. Our attorneys filed a motion for judgement notwithstanding the verdict or in the alternative for a new trial and the motion was argued in the United States District Court in Yakima on May 11. The motion was denied and the possibility of an appeal to the U. S. Circuit Court of Appeals is now being considered.

120125

PRIVACY ACT MATERIAL REMOVED

PRIVACY ACT MATERIAL REMOVED

Employee and Public Relations

EMPLOYEE RELATIONS

Bus Collision 300 Area, B-6835621

On June 17, 1952 a collision occurred near the 300 Area involving four government buses and a station wagon. Four persons brought suit against the , who was driving the bus in which they were injured. The total amount claimed in the four causes of action amounted to $324,966.55 plus costs. Three of the actions, those of were settled for a total of $59,000. The fourth cause of action, that of , was settled on May 5, 1953 for $9,186.55 making a total settlement figure of $68,186.55 for the four cases.

Liability Insurance

One case under litigation was closed during the month of May.

Life Insurance

Code information which is known only to Home Office Life Underwriters Association has been furnished 43 insurance companies and investigation agencies during the month of May, 1953. 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

	April, 1953	
Claims reported to Department of Labor and Industries	Long Forms	Short Forms
	44	371
	May, 1953	
	Long Forms	Short Forms
	35	412

Total since September, 1946 - 15,810

	April, 1953	May, 1953
Claims reported to Travelers Insurance Company	12	* 9

* Of the claims reported to Travelers Insurance Company during the month all were property damage claims.

Total since September, 1946 - 728

1293126

PRIVACY ACT MATERIAL REMOVED

Employee and Public Relations
Employee Relations

TRAINING AND DEVELOPMENT

Training and Development programs and activities for May 1953 were as follows:

MANAGEMENT AIDS:

MANAGEMENT ORIENTATION, a regular monthly scheduled program designed to welcome new exempt personnel to the management team, was offered on Monday, May 4, with 11 in attendance. An informal luncheon was held in conjunction with this program at which time Dr. W. D. Norwood, Medical Director, was guest.

LABOR-MANAGEMENT RELATIONS program is scheduled quarterly and was conducted on Wednesday, May 6, with 21 supervisors present. This is an 8-hour program which acquaints supervisors with their responsibilities under the current labor laws and in addition explains the spirit, intent and working philosophies of the GE-Union agreements.

POLICY PANEL SEMINAR is a 20-hour program (5 half-days) covering all O&PG's distributed to List 3. This is a discussion-participation type seminar and permits regulation of time in accordance with the desire of the group. This seminar was conducted from Monday, May 25, through Friday, May 29, with 19 supervisors participating.

MANAGEMENT SKILLS:

PRINCIPLES AND METHODS OF SUPERVISION is offered each month to supervisors in the outer areas (at Hanford High School) and in town (at Dorm W-10). Group #48 was attended by 18 supervisors and Group #49 by 20 supervisors. Both groups completed the conferences on Friday, May 22, having started on Monday, May 11, and presented for 10 consecutive days on a half-day basis.

PMS REFRESHER, a half-day review program was scheduled for Monday, May 25, at both Hanford High School and Dorm W-10. Seven supervisors attended the refresher meeting at Hanford High School; however, the meeting in Richland was cancelled due to insufficient enrollment.

CONFERENCE LEADING is an 8-hour program having as its purpose the preparation of supervision to conduct their own conferences and group meetings and utilizes role-playing and actual participation. This program was conducted on Tuesday, May 5, with 20 supervisors participating.

1204127

Employee and Public Relations
Employee Relations

MANAGEMENT DEVELOPMENT:

MANAGEMENT CONFERENCES ON HUMAN RELATIONS Groups #5 and #7 completed the series of three conferences on Wednesday, May 6, and Wednesday, May 13, respectively. These conferences permit participants to exchange experiences and obtain practice and dexterity in handling their own human relations problems. These groups were the test or pilot groups introducing this program at Hanford. Next September eight additional groups will be started. Results of questionnaires on this program are being compiled and will be used as a guide to further improve later conferences.

PROFESSIONAL MANAGEMENT DEVELOPMENT — These refresher or "spot" programs are offered to those supervisors who have been unable to attend our full-length programs, or who desire a "refresher" on the regular program. They are presented in the evening and are attended on a strictly voluntary basis. On Tuesday evening, May 5, a summary of the G.E. 9-Point Job was presented and 13 supervisors attended. On Tuesday evening, May 19, the Labor Law sound-slide films and a short discussion period was offered with 32 supervisors present.

MANAGEMENT PANEL FORUM meetings are held on topics of general supervisory interest and are entirely extemporaneous. Well-known members of management bring their experience to these meetings and the attendance is voluntary. On Thursday evening, May 14, the subject discussed was "On-the-Job Training". Mr. R. E. Toczek, in charge of Manufacturing-Separations training, and Mr. Ed Walsh, Process supervisor with long training experience, were panelists and 11 supervisors attended. On Thursday evening, May 28, Dr. W. I. Patnode, Chairman of the Education Committee, and Dr. P. A. Fuqua, Assistant Medical Director, were panelists for the subject of "Why People Act As They Do". This meeting had 22 supervisors in attendance.

OTHER TRAINING ACTIVITIES:

SUPERVISOR'S HANDBOOK — Following is a summary of handbook distribution to date:

Number issued prior to May -	1344
Number issued during May	6
Number returned during May	12
Number issued end of May	1338
Number on hand end of May	162
Total number of handbooks	1500

Of the 162 handbooks on hand, 46 are not usable as they lack too many pages, while 116 are ready for issuance.

1204128

Employee and Public Relations
Employee Relations

SECRETARY-STENO PROGRAM — On Tuesday, May 12, a test group of 15 secretaries and stenographers evaluated a proposed program to be given to incoming groups of secretarial and stenographic personnel and certain existing groups. Comments and suggestions from this group were evaluated and considered and as a result this program is being revised and should be ready for presentation in June.

CUSTOMER RELATIONS PROGRAM was presented on Thursday morning, May 14, and again on Thursday morning, May 21, to groups of approximately 15 non-exempt Radiological Sciences personnel. This is a request program and stresses getting along with people, especially those whom we may term as customers for our services.

SAGE - This is a one-page informative bulletin distributed to all Distribution Lists 1, 2 and 3 and prepared by Training and Development. Two issues were sent out this month, on May 19 and again on May 29.

REQUESTS FOR MATERIAL — There were 35 requests for transcripts of Training program attendance during the month, also requests for 20 copies of the Unwritten Laws of Engineering. Twelve HOBSO I booklets were requested by and sent to our Apparatus Division office in Seattle.

ANNOUNCEMENT LETTERS for each training program are sent to management approximately ten days before meeting time. This reminder permits scheduling for meetings in accordance with current activities.

SAFETY MEETINGS — Employee Relations regular monthly Safety meeting was conducted by a member of the Training staff on Thursday, May 14. In addition, the Village Painting and Renovating Supervisor and a jaintor foreman requested Training and Development to conduct Safety meetings for their groups. This was done on Tuesday, May 19, and Tuesday, May 26, with 70 and 30 employees attending the respective meetings.

VISITS — Dr. Ted Nahow, Training Director for KAPL, spent Tuesday, Wednesday and Thursday, May 26, 27 and 28, with the Training and Development personnel in reviewing the training activities at this works.

J. A. Wood, Supervisor of Training and Development and Vice-President of the Washington Chapter of the American Society of Training Directors, conducted the monthly meeting at Seattle on Friday evening, May 22. Mr. Wood reported on the Ninth Annual Conference of ASTD which was held in Boston. Mr. Wood is also responsible for coordinating the Third West Coast Regional Training Directors' Conference to be held in Seattle in October of 1953.

Employee and Public Relations

EMPLOYEE RELATIONS

EMPLOYEE COMMUNICATIONS

The first two issues of a new communications media, the "Management NEWS Bulletin," were written, produced and distributed. The first issue presented high-lights of the changes in the recent negotiated GE-HAMTC Agreement. The bulletins will be distributed periodically and will carry information of interest to members of management in an abbreviated style.

The emergency message procedure, whereby messages of immediate importance are transmitted by telephone through the Departmental channels, was utilized for the first time in informing members of management of the outcome of the representation election among Reactor and Separation Sections chief operators.

Further work on "Your Salary Plans," describing the two salary plans at Hanford for exempt employees, was suspended temporarily while a decision was sought from the General Manager. This decision was requested by Salary Administration following a substantial objection to the copy by one Department Manager.

A set of visuals portraying Communications at Hanford between members of Management, between Supervisors and employees, and between Top Management and employees, was developed in chart form, and also reproduced in 8½" x 11" size.

Rough copy of the booklet, "Here's Hanford," being prepared by Special Programs at the request of Public Relations, was sent to Technical Personnel for review. Copy may be adopted for use as a recruiting booklet by Technical Personnel.

Distribution of "Round Table Guide" to various Hanford Departments and Sections upon request reached a total of 109 copies during the month.

Recruitment advertisements for Nurses were placed in "The Journal of the American Medical Association" and the "American Journal of Nursing;" for stenographers and Laboratory Assistants, in the Yakima HERALD and REPUBLIC; and for a Dietitian, in "The Journal of the American Medical Association." A total of 37 replies were received from the Yakima ads--5 of these in writing.

The Kadlec Hospital Open House, which was held May 13, drew more than 500 visitors. This was a result of an intensive publicity campaign involving, on Special Programs part, the following: production and distribution through the plant and community, of a two-color poster; production of, and mailing to, Richland community leaders printed invitation; a letter to Hanford Management from the Medical Director; release of eight photographs with captions and one news story to the GE NEWS and release of eight photographs to the GE News Bureau. The publicity released through the News Bureau and Radio and Special Events was coordinated by Special Programs.

400 copies of a speech presented to the GE Supervisor's Association by William V. Merrihue were prepared in booklet form. Copies were distributed via Departments upon request.

Arrangements were made for the distribution of employee attitude survey reports to all HAPO employees. This involved production of a letter to management from the Manager-Employee Relations, and an Employee News Letter signed by the General Manager.

1204130

Employee and Public Relations

EMPLOYEE RELATIONS

The health and safety bulletins for June were combined into one publication entitled, "Take Two."

At the request of Community Operations, 5000 copies of a one-color, 4-page leaflet were prepared for distribution to visitors at the Central Fire Station during its "Visitors's Week."

The May issue of the MONOGRAM and the May-June issue of the GE-REVIEW were distributed together with a tip-on suggesting that recipients circulate the magazines among their associates.

The seventh in a series of GE NEWS messages on the 9 points of a GE job appeared in the May 15 issue. It concerned "Good Working Conditions."

Rough copy for a booklet on radiation protection in the 200 areas was approved by the Superintendent, Radiation Monitoring Sub-Section, Separations Section.

A pamphlet containing the Constitution and By-Laws of the Nucleonics Employees Good Neighbor Fund, together with questions and answers about the Fund, is being produced at the Print Shop.

"Operating A Records Management Program," a reprint of 2 papers presented by the Records Control Supervisor, have been placed in production.

Space has been secured in Building 722-R for storage of posters and booklets. This replaces storage space in Warehouses 1125-3 and 1125-5.

200 copies of "From Farm to Freezer," a publication of the U. S. Department of Agriculture, were distributed through the information racks.

The following posters were distributed throughout the month: 100 Kadlec Hospital Open House posters; 2 sets, 66 copies each, of Suggestion System posters; approximately 150 GE Insurance Plan posters; 2 sets, 90 copies each, of GE Photo News Service posters. In addition Memorial Day notices were posted.

Suggestion System was high-lighted in the GE NEWS throughout the month by publication of local suggestion award winners pictures and accompanying news stories. Highest award for the month, $500, received front page-publicity. Syndicated story giving overall company review of Suggestion System for 1952 was edited to include local tie-in.

75th Anniversary promotion included initiation of a series of articles on Company policies. "Policy" articles appeared in four issues, and covered vacations, absences and tardiness. A series of articles on Company history was concluded during the month. One of the articles, on development of the turbine, was tied in with a current syndicated article revealing largest turbine ever developed has been order from GE. An old time picture of the first turbine from an old GE source file was included to round out the whole feature.

Results of the Employee Attitude Survey conducted last October at Hanford were reviewed, and distribution of the report to employees was publicized.

120131

Employee and Public Relations

EMPLOYEE RELATIONS

Special feature articles included a trip of Hanford people to McNary Dam with pictures and accompanying story. Wild flowers growing in the areas provided another feature, material being supplied by people working in the areas.

Community activities given promotion in GE NEWS on activities and interests of employees off the job included publicity on Instrument show held in Richland, Town Hall series of lectures to be given in fall, Treble Clef concert, and Kadlec Hospital open house. Visitors Week at Central Fire Station was given publicity through pictures and accompanying news stories. The forthcoming Yacht Club festival and construction of mooring facilities were publicized for the benefit of Hanford boat owners. Light Opera's production of "No, No Nanette" also was publicized.

At request of Community Council, the GE NEWS is publishing a series of articles provided by the Council to keep Hanford people informed on community matters affecting possible future incorporation.

At request of GE Housing and AEC, the fact that new housing facilities are available to GE people, women heads of families and single people was announced in the GE NEWS.

Good Neighbor Fund received emphasis during the month in the GE NEWS. Money allocated to Cancer Society by the Good Neighbor Fund and work of the local Cancer organization were announced. Girl Scout activities were publicized, as was schedule for boys camp at Camp Burlin. Feature story on the Red Cross efforts to supply blood for gamma globulin in prevention of polio pointed up the importance of Good Neighbor Fund contributions.

Change in GE Purchase Plan procedure was publicized to advise employees that certificates are no longer required to purchase traffic appliances under the plan.

A buy, sell and swap column for the GE NEWS has been proposed as a service to employees, one which is provided by a great many GE plant newspapers.

Employee meetings, which improve communications, will be covered by the GE NEWS. The first picture of one of these meetings was published in the last issue of the month.

Work of GE employees in the Inspection and Materials Unit in purchasing equipment for Hanford was publicized in the GE NEWS via a picture submitted by an inspector at the request of the GE NEWS.

GE NEWS art work produced by the Employee Communications commercial artist included: a full-page photo layout, two editorial cartoons, layout and final art work for a GE NEWS full-page message developed by Special Programs.

Art work was completed for the June combined health--safety bulletin, "Take Two," for the July safety and health bulletin.

Seven illustrations were matted, framed and placed in the office of the Atomic Products Division General Manager. These included two wash drawings by the illustrator, three photos and three color prints.

1204132

Employee and Public Relations

EMPLOYEE RELATIONS

Booklet layout and art work was completed during the month for: "Hanford's Radiometallurgy Building," a 12-page booklet, plus cover with several photos and illustrations; a 4-page folder, "Welcome to Your New Fire Station:" and Good Neighbor Fund By-Laws booklet.

A four-page visual showing communications at Hanford was produced.

The Community News Letterhead was revised for the News Bureau and color layouts for safety stationery were developed.

1204133

PUBLIC RELATIONS

During the month of May, the News Bureau issued 34 releases. The breakdown by category, distribution, and content, was as follows:

Plant or Company		Distribution	
Plant Services	6	Local	15
Pay & Benefits	4	Daily	6
Union Relations	2	Home or College	1
Health and Sanitation	5	Special	12
Richland and Other Communities	12		
Military and Civil Defense	2		
Good Will Stories	3		
Total	34		

Content	
Information	3
Pictures with captions	4
Short News	21
Long News	5
Feature	1

Work has been completed on the series of articles which ran in the Columbia Basin NEWS describing the services General Electric provides the community. After approval of the series was obtained, interviews were held with those in charge of Kadlec Hospital, Public Health, Public Works, Water and Sewage System, Police, Fire, Community Engineering, Community Finance, Commercial Facilities, Parks and Recreation, the Library, Community Operations Section, and Community Operations and Real Estate Department. A representative of Public Relations accompanied the reporter on all interviews and all articles were reviewed by persons interested before publication.

It is felt that this series pointed out that General Electric has been providing about average community service for average cost. The series also made clear that the level of services available after incorporation will depend upon any subsidy made available by the Government and the level of service that the residents are willing to pay for through taxation. It also was made clear that General Electric will have nothing directly to do with the level of community services after incorporation.

Nine letters were sent to school students who requested information about Richland and Hanford. The comic book, "Adventures Inside the Atom," and the Richland and Hanford fact sheets were enclosed with each letter.

Assistance was given to the Tri-City hospital council in publicizing National Hospital Week in the tri-cities. A proclamation was prepared for the signature of officials in the three towns. A five minute talk on the importance of a hospital to the community was arranged for, and Dr. P. A. Fuqua's reading of the talk was recorded for radio broadcast. Other information concerning Kadlec Hospital also was supplied.

1204134

Information was released to the two local newspapers regarding the signing of the collective bargaining contract between General Electric Company and the Hanford Atomic Metals Trades Council.

A complimentary letter was received by the News Bureau regarding a story written on Playground Safety.

Promotion work was completed on the Cancer Drive, Kadlec Hospital Open House, and Visitor's Week at the Richland Fire Department.

A photograph of the Electrical Distribution crew was requested by the Columbia Basin NEWS to illustrate the re-organization of Electrical Distribution. A print was given to the Columbia Basin NEWS and to the Tri-City HERALD.

Communications were received from five farm magazines that either requested pictures or have already received pictures to illustrate our story on the Biology Section's Climatizer. The letters, indicating that the magazines will use the story, were received from Massachusetts, Michigan, Oklahoma, Texas and Pennsylvania. The total circulation of the five farm magazines is one million.

Acknowledgement was received from the editor of ADVENTURES AHEAD regarding the use of a feature story to be published late in the fall or winter on a visit to Europe by a Richland Civil Air Patrol member. The young European traveler will take photos for publication in the GE magazine for teen-agers.

An article on "Heat Transfer" prepared by G. M. Roy and Gardner L. Locke, of the Process Engineering Unit, was sent to the GE REVIEW for use in their September issue.

A request was received from the Tri-City HERALD concerning the transfer of responsibility for administration of volunteer services in Civil Defense from G.E. to AEC. The reporter wanted a description of the Civil Defense organization before and after this transfer and also the effective date of the transfer. It was determined that he intended to write an article drawing attention to an alleged lapse in the development of Richland's Civil Defense program. After consulting with Clyde Bergdahl, the Counsel, and the Atomic Energy Commission, a statement was prepared answering the reporter's questions.

Representatives of Public Relations participated in a meeting held at Richland by Associated Press personnel and personnel of radio stations in the Northwest that subscribe to A.P. news service. They attended a luncheon on May 22 during which a talk and exhibit was furnished by a member of Radiological Sciences. One of them accompanied the group on a bus tour inside the barricade. Contacts made during this meeting with both A.P. and radio stations personnel have resulted in some changes that will be made in the releases sent to certain radio stations.

A field editor for Outdoor Life magazine visited Public Relations and requested a story on the Company's work in the aquatic biology field here at Hanford. It was explained that a local free lance writer is preparing such an article to be submitted to an outdoor magazine. If this writer does not sell this article we will contact Outdoor Life.

1204135

The Community Newsletter for May was mailed to all community leaders in Pasco, Kennewick and Richland.

A request was received from one of the local papers concerning the Employee Attitude Survey and a release concerning the results of the survey was sent to local media and to business editors and business publications throughout the Northwest. Copies of the booklet describing survey results were given to the two local reporters.

An article written by Caesar Branchini entitled "Industrial Health and Medical Programs" was forwarded to TODAY'S HEALTH.

An attempt was made to arrange a tour of the 700 area and Central Stores Warehouse for graduating seniors at Columbia High School. Security placed a ceiling of 15 people on the number who could tour the 700 area, and for this reason the tour was to be confined to the Central Stores Warehouse. After difficulties in obtaining transportation for the students were overcome, the tour was abandoned because only three out of the graduating class of 276 expressed an interest.

The following are papers cleared for presentation and/or publication during the month, five of which were in abstract form:

"Tests of Resistance - Heated Furnace," by J. F. Fletcher, to be presented in support of his application for a Washington State Engineering License.

"Separation of the Gaseious Fission Products by Charcoal Adsorption" by J. W. Finnigan as a thesis for his Master of Sciences Degree from the University of Idaho School of Chemical Engineering.

"Construction and Design at Hanford," by W. W. McIntosh, for presentation at a meeting of the Spokane Construction Council, Spokane, Washington, May 27, 1953.

"Nuclear Radiation and It's Control," by W. A. McAdams, for presentation at the Associated Press luncheon, Richland, Washington, May 22, 1953.

"Industrial Utilization of Fission Products", by R. E. Burns, for presentation at the American Chemical Society meeting, Richland, Washington, May 27, 1953.

"Universal Anticipation of Endpoint System for Automatic Titrations", by W. N. Carson, for publication at a later date in "Analytical Chemistry."

"Further Studies on the Action of Growth-inhibiting Levels of Tritium Oxide on Chlorella Pyreniodosa", by John W. Porter, for a paper to be presented at the A.I.B.S. meeting, Madison, Wisconsin, September 7-10, 1953.

"The Qualitative Recovery of Plutonium from Laboratory Residues", by William S. Ferguson for a classified thesis for a Master's Degree at Oregon State College, School of Chemistry.

1204136

"The Reaction between Hydrogen Peroxide and Ruthenium Tetroxide in Acid Solutions," by A. S. Wilson, for a paper to be presented at the American Chemical Society Regional Meeting, Pullman, Washington, June 12-13, 1953.

"Filtration of Radioactive Aerosols by Glass Fibres," by A. G. Blazewitz, for a manuscript to be written for presentation at a symposium of the National A.E. Ch.E meeting in either December, 1953, or March, 1954.

"Substitution Reactions in Inert Inorganic Complex Ions Accelerated by Hydrogen Peroxide" by A. S. Wilson and J. L. Swanson, for presentation at the American Chemical Society Regional Meeting, at Pullman, Washington, June 12-13, 1953.

The following local and regional presentations were made by Hanford speakers during the month:

G. L. Brown, Manager of Public Relations Section, spoke on"Hanford's Place in the Atomic Energy Program" at the district meeting of the A.A.U.W., Walla Walla, Washington, May 9. In connection with his talk the sound slidefilm, "Hometown...Richland" was shown.

Dr. W. I. Patnode, Administrative Assistant, Technical Education, participated in a forum panel at Oregon State College, May 12 at the School of Mechanical Engineering Faculty Seminar. Various topics relative to engineering were discussed.

George Barr, Employee Relations Section, gave a talk on "How Can a Shop Instructor Help Prepare a Boy for His First Visit to the Employment Office of a Large Company," May 2, at the meeting of the Central Regional Industrial Arts Association, Richland, Washington.

Bernard Leboeuf spoke at the meeting of the American Chemical Society in Richland, Washington, May 27, on "Analysis of Radio-Nuclied Mixtures Using a Gamma-Beta Scintillation Spectrometer" which was cleared for presentation in March, 1953.

Dr. Roy C. Thompson spoke at the ACS meeting, Richland, May 27, on "Studies of the Metabolic Turnover with Tritium as a Tracer," which was cleared for presentation several months ago.

"The Possible Modes of Action of Chloromycetin," by Grant N. Smith, which was cleared for publication some time ago, was published in the March, 1953, issue of "Bacteriological Reviews" in a section entitled: "Symposium on the Mode of Action of Antibiotics."

G. L. Brown, Manager of Public Relations Section, was principal speaker at the Benton City graduation exercises, Benton City, Washington, Thursday, May 28.

1204137

A total of 179 photography assignments were filled during the month, producing a total of 21,982 prints, of which 20,508 were "A" and "B" badge prints. Area and news work consisted of 1,474 prints.

Motion picture film exposed during the month on two individual motion pictures is as follows: 1800 feet, 16mm (B&W) for 100-K Construction and 700 feet, 16mm (B&W) for Minor Construction.

Projection equipment loans during the month were: 16mm motion picture projector and screen, fourteen times; 3¼"x 4" lantern slide projector and screen, seven times; 35mm sound slide projector and screen, eight times, 35mm Golde projector and screen, four times and one big screen, two times.

Several color slides on Safety subjects were produced for the Safety Department of Kaiser Engineering at the request of the AEC.

Following issuance of Organization and Policy Guide 02.5, concerning photography equipment, one 16mm motion picture projector and one speed graphic 4"x5" camera, was turned over to the Photography Unit as excess equipment. This equipment was checked, put into operating condition, and re-issued on a loan basis to Departments having a temporary need for such equipment. Other photographic equipment exchanges and transfers are anticipated which will make it unnecessary to purchase new equipment, and which will allow full use of equipment now on hand within various plant organizations.

A showing of all motion picture footage produced for Minor Construction Management Unit was held May 5, for the Sub-section Manager and his associates. In attendance were the Manager of Public Relations Section, the producer, writers and cameraman. Lou Roos, Technical Consultant, expressed satisfaction in the production so far, as did other members of his group.

A preview of the work prints on the motion pictures being produced for Engineering Department and the Atomic Energy Commission on Expansion Program subjects was held on May 6 for members of those organizations. Complete harmony and agreement were expressed by both groups and plans for producing some preliminary finished reels were laid following the showings.

Specifications for a contract between the Company and an off-site film studio for processing and finishing services for the three training-documentary films on the current Expansion Program being processed by this Section for the Engineering Department and the AEC have been drawn up and submitted to Administrative Contract Services Sub-section.

Security clearances have been obtained for executive and production staff members of W. A. Palmer Films, Inc. in San Francisco, who will process and assist in completing classified portions of training-documentary motion pictures now being produced by this Section for Hanford Atomic Products Operation departments and the AEC.

A slidefilm, "Program for Security", made by the Company for use in orientation groups was obtained by Employee Benefits Unit. A special showing was held with the Manager of Employee Relations Section and his associates following which a request was made on this Section to produce recordings that will permit automatic projection of the film. A member of this Section then produced a script

from the record and film material, and processing is now underway by an off-site film and recording studio.

Two members of this Section consulted with the Supervisor of Training and Development regarding a slidefilm production for supervisor training programs. A basic script was prepared and submitted for consideration. A visual presentation was selected to augment an extensive educational program being devised to help improve employee relations.

Three groups, totaling 101 people, whose jobs involve making duplimat masters and repairing typewriters, have recently reviewed the slidefilm, "It's Just Knowing How," produced by this Section for Plant Security and Services Section. Comments received from that Section's management revealed that the slidefilm is proving to be extremely helpful and that the technical detail is well portrayed.

The Supervisor of Radio & Special Events and the Supervisor of Photography conferred with the executives and production staffs of W. A. Palmer Films, Inc., at San Francisco. These people provided constructive criticism on motion picture production techniques in camera work, lighting and direction during the screening of over 5000 feet of workprint film exposed by us. In addition to our knowledge of production from completed films, the information obtained will provide improvements in direction and photography which will lead to shortcuts and cost-saving procedures in production of the 100-K documentary-training motion picture for Design Section, and the Expansion Program training-documentary motion picture being produced for the Atomic Energy Commission.

May 26 marked the first anniversary of the HANFORD SCIENCE FORUM broadcast over Radio Station KWIE as a public service program. The SCIENCE FORUM is currently being heard at 8:00 p.m. Tuesdays because of summer schedules affected by Daylight Saving Time in other communities.

A proposal was submitted for a SCIENCE FORUM anniversary program and dinner to be held on June 16. The program was approved, and it is planned that the General Manager will present a copy of the General Electric 16mm motion picture, "A is for Atom" to the Richland Public Schools for their use exclusively. It is proposed that guests at the anniversary celebration include those who have been associated with the program during its first year on the air.

A skit on Human Relations was produced for Training and Development Unit for use in a program on Office Personnel Relationships. Talent from the Richland dramatic group was secured and two members of this section engineered and directed the recording with sound effects. The skit has been transcribed for play-back to the groups attending the training programs.

Arrangements were made by this Section for an "on-the-spot" recording of a conducted tour through Kadlec Hospital which was produced for broadcast over Radio Station KALE prior to the Open House, May 13. This local radio station produced the program employing their feature talent and broadcasting it as a Public Service.

This Section assisted in the production of a radio program used to publicize the Open House activities of the Richland Fire Department. The program was broadcast as a public service by local radio stations.

1204139

A Public Relations representative assisted with the Little League Baseball's Jamboree Program at Memorial Softball Park, May 2. He also served as master of ceremonies for the program and introduced officials of the Company, the Atomic Energy Commission and the Schools.

Arrangements were made for special showings of the sound slidefilm, "Shall Not Perish", produced by this Section for Hanford District Civil Defense, for a part of Camp Hanford's Armed Forces Day Program, May 16.

Twenty-two motion pictures were obtained from General Electric and other approved sources for showings to plant groups in connection with training and information programs held in the Areas this month.

See attached statistical report of Photography Unit work during May.

1204140

HANFORD PHOTOGRAPHY UNIT MONTH OF MAY, 1953	2" X 2"	2" X 4"	5" X 7"	8" X 10"	4" X 5"	NE G	35mm Color Slides	3¼" X 4" (B&W) Slides	4" X5" Ekta-chrome
COMMUNITY OPERATIONS & REAL ESTATE DEPT.				3		3			
Commercial Services				12		14			
Fire			16	2		6			
Parks & Recreation			82			22			
Police		54	14		19	84			
Library			33	4		11			
EMPLOYMENT & PUBLIC RELATIONS									
Employment	700					140			
News Bureau			96	147		96			
Special Programs				71		45			
Training		4		7		6			
Works News		49	35	82		126			
ENGINEERING DEPT.									
Design				6					
Technical								7	
Technical Information				2					
Pile Technology				180	45	34		27	
Project				153		21		19	
MEDICAL							4		36
MANUFACTURING									
Plant Engineering				26		3			
Reactor Section			4	1					
Separations Section			14	3					
RADIOLOGICAL SCIENCES DEPT.									
Records & Standards				3					
Biophysics								6	
Biology				44					
R.M.U.						4		11	
PLANT AUXILIARY OPERATIONS DEPT.									
Safety & Fire Protection					7	7			
Security	10,129	9,634		72		731			
Purchasing-Traffic				28		7			
MISCELLANEOUS									
A.E.C. Safety			55	101		55			
A.E.C. Security	45					9			
TOTAL -	10,874	9,741	349	947	71	1,424	4	70	36

	MARCH	APRIL	MAY
Total Assignments	158	189	179
Total Negatives	1,516	1,459	1,424
Total Prints	19,533	17,358	21,982

HW-20702

Employee and Public Relations

SALARY ADMINISTRATION

GENERAL

During the month of May the major effort of the Salary Administration Section was expended toward assisting various departments and sections in improving organization and in evaluating and establishing new or modified positions.

ANNUAL SALARY SURVEY

All contacts with participating companies on both the National and the West Coast Salary Survey for 1953 were completed during May. Data is coming in at a good rate and is being analyzed and processed as received. Forty of 47 companies have already submitted their data. Plans are well developed for completion and publication of the survey report.

POSITION EVALUATION

The evaluation and consolidation of positions in conformance with established organizational structure is approximately 75% complete at month end. The majority of work remaining in this area consists of cleaning up miscellaneous positions or groups of positions preparatory to revising and publishing a current "Position Description Manual."

The program for organized interviewing of 10-15% of the employees in each section was gotten well under way during May. This interviewing is being done by Salary Administration to determine how nearly the incumbents are performing the duties described in their respective position descriptions. The Design Section of Engineering and about one-half of the entire Plant Auxiliary Operations Department were covered. Results generally show that the persons interviewed were performing within their described positions.

ORGANIZATION ANALYSIS

Organization Analysis activity during May primarily consisted of consulting and advising with sections on specific organizational problems, of definition of the scope of the analyses to be made, and clarification of reporting methods. Several of the departments or sections receiving assistance were: Medical Department, Electrical Distribution Unit, Reactor and Separations Sections of Manufacturing, and the Project Section of Engineering. Although some preliminary analyses were made in several sections, no studies of complete sections were attempted during May pending clarification of scope.

ORGANIZATION DIRECTORY

During the month of May the responsibility for publication and maintenance of the Organization Directory was transferred to the Salary Administration Section. This responsibility has been assigned to the Head, Organization Analysis, and procedures have been established.

SALARY BROCHURE

The preparation of the salary brochure for orienting employees on Hanford salary administration plans has been temporarily tabled pending some agreement as to the amount and type of information that is to be released in this brochure.

Employee and Public Relations

TECHNICAL RECRUITING

For M.S. and B.S. Candidates

Since spring recruiting at the colleges is completed, we are studying the outlook for the coming fiscal and academic year. It is well established that both numbers and quality of technical graduates available to industry will suffer severely due to inroads of the college ROTC programs which are planned to take 48 percent of all 1954 engineering graduates. We are making up packets of material for college placement offices to attract returning veterans, also revising our recruiting leaflets for such new graduates as will be available.

For Ph.D. Candidates

There are now six tentative openings, and candidates are under consideration for five of these positions.

Experienced Engineers

Since few high caliber experienced engineers are available these days, considerable effort will be needed to fill the five major positions which are open. We are planning advertising, attendance at professional conventions, and the contacting of certain college alumni placement offices. Other less prominent positions are being filled by internal transfers.

TECHNICAL PERSONNEL TRANSFERS AND LOSSES

Resignations	8
Transfers to other Divisions	2
Transfers within HAPO	4

In four other cases employees have been persuaded to remain in their present positions under satisfactory basis.

Continuing last month's report, all of the chemists currently available from the Separations Process Unit of Manufacturing have been well placed elsewhere in the plant.

EDUCATION

An independent survey of the School of Nuclear Engineering, conducted by Miss Lomen, disclosed that most of the students feel that the School serves a valuable purpose and meets their requirements. The survey also disclosed that:

1. Shift work deters a number who would like to undertake studies.

2. There is some demand for additional courses in business and economics, as well as in psychology and other arts.

3. There is a considerable demand for college-level courses which is not met by our present graduate program.

It now appears possible to offer by correspondence a considerable variety of college-level courses available from various Universities. To remedy the usual

weakness of correspondence study, counselors in various major fields could be made available to meet with interested students each week at small additional expense. Details of such a program are being worked out whereby college-level offerings could be made available to parallel the present graduate-level program.

UNIVERSITY CONTACT

No new activities to report.

ROTATIONAL TRAINING PROGRAM

The seventeen local college alumni groups, formed over recent years at the instigation of this office, have all been activated to receive the new graduates who will be arriving from their respective schools. The names of the new Technical Graduates have been given to the proper professional societies so that the interests of these men can be solicited. We are working closely with the Community Department toward grouping the new Technical Graduates in the Richland dormitories.

MISCELLANEOUS

An invention report, developed jointly with F. B. Quinlan of the Engineering Department and covering a new method of slug manufacture, has been filed. We were able to give some assistance to the Engineering Department in a problem involving torsional oscillation in a large motor application. A proposal on Management Development Study has been submitted which would complement rather than compete with present supervisory training programs.

1 2 6 1 4 4

Union Relations

UNION RELATIONS - OPERATIONS PERSONNEL

Agreements with the Hanford Guards Union and the BSEIU were executed on May 8, to become effective May 16, 1953. On the same date, the Agreement with the HAMTC was signed by the Business Representative, subject to ratification by affiliated locals. Formal ratification was received on May 28. The terms of the Agreement will become operative June 1, with retroactivity to May 16 confined ~~to the~~ increase of five cents an hour in shift differential for swing shift employees. Side agreements effecting revised seniority groupings and nomenclature for Chemical Worker classifications in the 100, 200 and 300 Areas were executed May 22, to become effective June 1, 1953.

Numerous meetings with plant supervision were conducted by representatives of this office for the purpose of publicizing the revisions and intent of the new union agreements. Approximately 500 supervisors have participated.

A pre-hearing meeting with Arbitrator Judge Harold A. Seering was held in Seattle on May 12, in connection with the HAMTC's demand for arbitration of fifteen Instrument grievances. Both Company and Union representatives were present. Some progress was made toward gaining a clear definition of the issues to be arbitrated. Following this meeting, the Union, through their attorney, requested further discussions locally to attempt an amicable settlement of the dispute short of arbitration. Meetings on May 20, 25 and 29 accomplished a settlement of this issue. The terms of settlement involved nothing in the way of compromise on the part of the Company. The matter is, of course, subject to the approval of the Guild membership, but definite assurances were received from the representative group and their attorney prior to making an offer, that any agreement reached with the Company would be acceptable to the membership.

The Company agreed to a consent election in the HAMTC petition for certification as the collective bargaining representative for Chief Operators in the Reactor and Separations Sections. The agreement was based on a signed stipulation from the Council providing that in the event of an affirmative vote, the Council would:

1. Bring Chief Operators into the bargaining unit under the existing Agreement, the existing wage scale and existing job description, and

2. Recognize the Company's right to promote to the Chief Operator classification with less regard for seniority than is given to upgrades in lower classifications.

The election was conducted by the NLRB on May 26 and 27, with the following results:

1209145

Employee and Public Relations

	May 26-27, 1953	Sept. 11-12, 1951
Eligible to vote	66	51
Votes cast	63	49
For HAMTC	24	17
Against HAMTC	39	32

Paul M. Herzog who, since July, 1945, has been chairman of the NLRB has resigned. His resignation has been accepted by the President, effective June 30, 1953.

Eight grievances involving 13 Engineering Assistants on the technical payroll were submitted involving claims for (1) a re-evaluation of their (weekly) salary grade and (2) pay for daily lunch periods for which they are not relieved of all job responsibility. Our investigation of this matter has revealed that the grievances are factual and that adjustments are in order.

The determination was made to (1) revise the salary grade of eight of the individuals from Grade 16 to Grade 17, and five of the individuals from Grade 16 to Grade 19; and (2) make retroactive payments up to a period of two years for lunch periods worked. Steps are being taken to again publicize the supervisor's responsibility in the proper scheduling of lunch periods.

We have unconfirmed information that the new Labor-Management Relations Panel will be comprised of the following:

*Cyrus Ching	-	Chairman
*George Taylor	-	Former Chairman of War Labor Board and WSB
Ed Cushman	-	Wayne University
Thomas Holland	-	Miami University
- Guthrie	-	North Carolina University
*Arthur Ross	-	University of California

According to our information the names checked are certainties, with some question existing with respect to the other three named.

I believe we can expect a visit from representatives of this group in the near future, endeavoring to secure commitments comparable to those requested by the Davis Panel under Section 5(c) of the "Report of the President's Commission on Labor Relations in Atomic Energy Installations."

Grievance Statistics:

Three meetings were held during the month for the purpose of processing grievances at the Step II level.

1264146

Status of Grievances

	1953 Unit	1953 Nonunit
Received this month	18	0
Received this year	137	17
Settled at Step I this month	5	3
Settled at Step I this year	48	11
Pending settlement at Step I at end of month	0	5
Settled at Step II this month	10	0
Settled at Step II this year	68	1
Pending settlement at Step II at end of month	208*	0
Brought to arbitration during the month	0	0
Pending settlement by arbitration	10**	0
Total number pending settlement	218	5

*Includes 169 bargaining unit grievances brought to Step II by the Union prior to January 1, 1953, but not scheduled for Step II processing by the Union to date.

**Includes eight grievances brought to arbitration level by the Union prior to January 1, 1953, but no further action has been taken by the Union to date.

Analysis of Grievances Received this Month

Department	Unit	Nonunit
Manufacturing Department		
Reactor Section	6	0
Separations Section	5	0
Total for Department	11	0
Plant Auxiliary Operations Department		
Plant Protection Section	2	0
Transportation Section	2	0
Clerical Services Section	1	0
Total for Department	5	0
Community Operations & Real Estate Department		
Community Services Section	1	0
Total for Department	1	0
Medical Department		
Kadlec Hospital	1	0
Total for Department	1	0
Engineering Department	0	0
Financial Department	0	0

1204147

Employee and Public Relations

Radiological Sciences Department	0	0
Legal Department	0	0
Employee and Public Relations Department	0	0
GRAND TOTAL	18	0

Subject Unit Grievances	
Jurisdiction	10
Health-Safety-Sanitation	6
Subjects not covered by Contract	2
TOTAL	18

CONSTRUCTION LIAISON

The special panel appointed by the Director of the Federal Mediation and Conciliation Service, on May 11, submitted a recommendation for future assignments of work to Machinists and Millwrights with the specification that the recommendations have application only to operations now or hereafter conducted in Buildings 101 and 2101 at Hanford by Kaiser Engineers. The Panel recommendation served to alleviate the dispute involving the movement of machinery from 101 to 2101 Bldgs.

Twenty-three Machinists in 2101 Building laid down their tools on May 27 in protest over an assignment of work to the Millwrights which apparently was contrary to the recommendation recently received from the special panel appointed by the Federal Mediation and Conciliation Service. The assignment was made as a result of a letter from Fred Smith, Labor Coordinator, which was retracted the following day. At this point, the Millwrights walked off the job. A rumor of a picket line to be set up on May 29 failed to develop and Kaiser has information that the International has ordered the men back to work on Monday, June 1. Discussions of this matter are scheduled for the week of June 1 at Kaiser's home office in Oakland.

The Building Trades Council has filed a protest with the AEC, charging the Cisco Construction Company with a violation of the Davis-Bacon Act. The action stemmed from the fact that Cisco employed nonunion laborers to perform work claimed by the Pipefitters. This matter has been investigated by the Department of Labor, and locally, and there appears to be evidence of gross violations.

WAGE RATES

A reimbursement authorization request for an increase in the job rate and the establishment of a merit step rate schedule for the classification of "Dispatcher (Electrical)" was submitted to the Atomic Energy Commission.

1203198

A request was submitted to the Atomic Energy Commission for revision of reimbursement authorizations to cover changes made necessary by the recently negotiated agreements between the Hanford Atomic Products Operation of the General Electric Company and the Hanford Atomic Metal Trades Council, the Building Service Employees International Union, and the Hanford Guards Union.

In conjunction with the above, submission of a reimbursement authorization request was made to the Atomic Energy Commission for proposed revision of existing reimbursement authorizations covering changes in existing pay and policies for nonbargaining unit employees, thus enabling us to maintain the existing pay and policy relationship for bargaining and nonbargaining unit employees.

A changeover procedure was completed and placed in effect, setting up the Metal Operator, Metal Fabricator and Metal Handler classifications and establishing a new seniority group in the Metal Preparation Section.

Wage surveys participated in by the Wage Rates Unit during the month included those sponsored by the U. S. Bureau of Reclamation at Ephrata, the Westinghouse Electric Corporation at Arco and Idaho Falls, and the Montgomery Ward Company.

Eleven meetings were held during May with representatives of the various labor locals during which a wide variety of problems and proposals for revisions in connection with classification, rates, progression schedules and work assignments were discussed. Investigation of the Union's proposals and complaints is in progress. The results of this investigation will be discussed in future meetings.

A study of work performed by individuals classified as Stenographers was completed. Seven employees were found to be misclassified, and the names of these individuals were forwarded to the Personnel Practices Unit for assignment to jobs where their stenographic ability can be used. Further study of this classification problem is continuing.

A revised hiring policy for inexperienced and experienced stenographers was established in meetings between representatives of the Wage Rate, Personnel Practices and Stenographic Services groups.

Copies of the completed Northwest Area Rate Survey were distributed to participating companies.

The first in a series of meetings between the Wage Rates, Payroll and Personnel Practices Units was held, during which plans were made to eliminate duplication of work and records.

The first two of a series of meetings with representatives of all departments employing semitechnical workers was held during the month for the purpose of establishing a firm basis for the classification of individuals in the categories of Laboratory Assistant and Engineering Assistant.

1209139

Employee and Public Relations

Three hundred sixty-four (364) automatic increases and six (6) merit increase were processed during May. Requisitions for one hundred fifty-one (151) prospective employees and Additions to the Payroll for fifty-seven (57) new employees were approved. Review for proper classification, rate, etc., was made for twenty-six (26) reactivations, ninety-two (92) reclassifications, eight-eight (88) transfers, sixty-five (65) temporary reclassifications, and three (3) transfers from the exempt roll.

120150

COMMUNITY OPERATIONS AND
REAL ESTATE DEPARTMENT
MONTHLY REPORT SUMMARY
MAY, 1953

ORGANIZATION AND PERSONNEL

Number of employees on roll:		SUFFIX	BEG. OF MONTH	END OF MONTH
General Administration		310	5	5
Community Operations Section				
Administration		320	3	4
Public Works		321	77	76
Electrical		324	18	18
Engineering		326	9	9
Recreation & Civic Affairs		327	5 1/2	5 1/2
Library		327	10 1/2	10
Fire		328	68	68
Police		329	51	51
	Sub-Totals		242	241 1/2
Community Real Estate Section				
Administration		330	3	3
Housing Rental		331	24	23
Maintenance		333	147	148
Commercial Property		337	12	11
	Sub-Totals		186	185
Civil Defense Program		360	2	1
	GRAND TOTALS		435	432 1/2

There was a decrease of two and one-half employees in the Department during the month of May, 1953.

GENERAL

The American Automobile Association advised that Richland has been awarded third place tie in the National Pedestrian Protection Contest for 1952 in population bracket 10,000 to 25,000.

During Visitor's Week, held May 24 through 31, at the new Central Fire Station, approximately 1,360 persons were conducted on a tour of the Station.

A two bedroom prefab type house at 603 Winslow Avenue was damaged by fire May 17; the damage was so extensive that it was agreed that the building would be offered for sale.

Single employees, as well as female heads of families, were made eligible for Wherry Act housing certification.

Total housing applications pending - 693.

HARoot/jak
6/10/53

COMMUNITY OPERATIONS SECTION

SUMMARY

MAY 1953

ORGANIZATION & PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
ELECTRICAL	4	14	4	14
PUBLIC WORKS	14	63	13	63
RECREATION & CIVIC AFFAIRS	3	2 1/2	3	2 1/2
LIBRARY	4	6 1/2	4	6
POLICE	18	33	18	33
FIRE	68	0	68	0
ENGINEERING	6	3	6	3
	113	122	116	121 1/2

The American Automobile Association has indicated that Richland won a third place tie in the National Pedestrian Protection Contest for 1952. Competition was among cities of the 10,000 to 25,000 population bracket. The award of a plaque will be made in the near future by the Automobile Club of Washington.

1204152

RICHLAND ELECTRICAL UNIT
MONTHLY REPORT
MAY 1953

ORGANIZATION AND PERSONNEL	Exempt	Non-Exempt
Employees beginning of month	4	14
Transfers in	0	1
Transfers out	0	1
Terminations	0	0
Total end of month	4	14

SYSTEM MAINTENANCE AND OPERATION

Outside Lines

Poles set and transferred	16
Anchors set and guys installed	5
Street lights repaired and steel mast arms installed	12
Street lights relamped - Mercury Vapor	3
Street lights relamped - 6000L and 4000L, 1100 Area	120
Street lights relamped - 6000L and 4000L, 700 Area	10
Flood lights relamped, 700 Area	0
Flood lights relamped, 1100 Area	28
Stack lights relamped, 700 Area	2
Primary line footage added	600
Primary line footage removed	400
Transformer KVA added	100
Transformer KVA removed	25
Net transformer KVA installed	75
New services installed - residential	19
New services installed - commercial	4
Temporary services installed and removed	4
Scheduled outages - primary	2
Scheduled outages - secondary	3
Unscheduled outages - secondary	3
Unscheduled outages - primary	2
Standby and escort	3
High voltage tree trimming	56
Low voltage tree trimming	10

TRAFFIC SIGNALS

Relamping	1
Operational failures	5
Installations	1
Removals	0
Routine maintenance checks	2
Routine check RR signal at Van Giesen	2
Total signals in operation - automatic	17
Total signals in operation - manual	3

1209153

Richland Electrical Unit

PUBLIC WORKS ELECTRICAL MAINTENANCE

Electrical motors checked and serviced - irrigation	15
Electrical motors checked and serviced - water	25
Electrical motors checked and serviced - sewage	48

FIRE DEPARTMENT TEST AND MAINTENANCE

Inside circuit and equipment checks	4
Outside circuit checks	4
Inside faults repaired	1
Outside faults repaired	2
New circuits placed in operation	0
New boxes placed in operation	0

SUBSTATIONS

Main feeder and tie breaker checks - BB1S1	1
- BB1S2	0
Secondary and pad located stations - Checked jumpers, cutouts, grounds and general condition	2

METERING - OPERATION, MAINTENANCE, CONSUMPTION AND REVENUE

Voltage and load checks	3
Meters tested - customers' requests	8
New meters shop tested	3
Faulty meters replaced	14
Damaged meters and covers	3
Residential read-ins	88
Residential read-outs	74
Residential disconnects	0
Residential reconnects	0

Note: Consumption and revenue reports, under IBM operation, are not available until the 18th of following month.

	No. of Meters	KWH	Revenue
Consumption and revenue:			
Schedule 1 - Residential -	6,067	5,841,277	57,477.74
Schedule 2 - Commercial -			
Class 1 (in lease)	76	752,810	7,149.20
Class 2 (metered)	120	472,399	5,759.86
Class 3 (Plant Adm.)	6	663,800	4,384.29
1131 Garage			
Kadlec Hospital			
Stores Excess and Salvage			
Central Stores			
Public Health			
Metered Commercial Buildings	3	18,960	948.00
Central Fire House			
Public Library			
Medical-Dental			
TOTAL	6,272	7,749,246	$75,719.09

120454

Richland Electrical Unit

ALL OUT — Total weekly paid time - 46 MH
Total monthly paid time- 24 MH

UNUSUAL INCIDENTS

Soldier ran car into guy wire at By's Burgers breaking 7200 volt wire and narrowly avoiding fatal accident.
Soldier ran car through telephone pole near Skyline Drive-In Theatre.
Lineman working on switching order reported primary switch open, but failed to open it, resulting in grounds being applied to hot line. The damage was negligible due to strict adherence to application of safety grounds before starting work.

COMMENTS

Transformer station was provided for new American Legion Building, George Washington Way at Newton Street.

Power supply was provided along water front Newton Street to Lee Boulevard for people using mooring installations. No 3-phase current will be available, and the service entrance equipment will be provided at the nearest pole to customers as no services will be run to the water front area.

The 7200 volt primary system newly constructed south of Duportail was accepted for operation, but not the secondary system in its entirety, nor fire alarm and telephone.

mp motor to "B" well in Columbia Field blew fuse and shut down. Condition caused by verheated equipment in closed building and extremely warm day.

Transformer in Douglass Court on primary pole 22-172 was out due to broken primary jumper in wind, service was restored in short time.

Overloaded meter at Groceteria burned up due to unbalanced wiring. Rearranged wiring on work order from facility group, and reinstalled new meter.

Eleven street lights on Lee from Stevens to Wright were overhauled and new steel arms installed due to poor condition.

Secondary service to house at 947 Long was burned off in tree during wind. Neutral wire was replaced.

Renumbering of poles on #400 series circuit was completed - 80 poles with street lights were involved.

The North Commercial Area is past normal loading powerwise, and rearrangement and addition to transformer banks and stations is becoming necessary to supply approximately an additional 400 KVA in connected load.

ROADS AND STREETS (Continued)

14" culvert was installed and filled. This allowed for widening and lowering of the road at this point.

Seasonal maintenance and cleaning of streets, drainage systems, municipal parking lots and sidewalks were continued.

PARKS AND PUBLIC GROUNDS

Determination was made that the costs of renovation as necessary to bring the Riverside Swimming Pool up to acceptable standards were not justifiable, Work is now in process on the filling of the pool, and removal of fence, change lockers, and miscellaneous swimming pool fixtures. The area will be seeded to lawn grass when dismantlement is complete.

A policy has been placed in effect which requires that groups using Park areas for money raising ventures shall pay a flat fee to cover the costs of additional clean-up labor, police service, etc., occasioned by the activities.

Seasonal maintenance was continued in shelterbelts, parks, public grounds, and other lawn areas assigned to the care of this sub-unit.

DOMESTIC WATER

Normal seasonal operations and maintenance were continued. Average daily consumption for May was 14.52 million gallons, with a peak usage of 17.89 million gallons occurring on May 13.

The 10" water main from Knight Street to Mansfield, within the 700 Area, developed a leak directly under building 715. This line ruptured under building 713 A during last September, and a decision has been reached that further maintenance of this thin wall steel pipe is not economical. A project has been submitted to replace this line with cast iron pipe and to locate the new line east of the existing main so that it will be clear of all buildings.

The Columbia Field River pump has been overhauled and placed on the high-water base.

All feeder mains and the reservoir included in the Water Development Project have been completed, and have been chlorinated and placed in service. Some line testing, general clean-up and installation of reservoir level gauge wiring remain to be done. Bid opening on installation of the new well header line and sand traps, and equipping of five new wells will be held on 6-3-53.

COMMUNITY OPERATIONS AND REAL ESTATE
PUBLIC WORKS UNIT
May 31, 1953

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Employees Beginning of Month	14	63
Transfers Out	1	5
Transfers In	--	5
New Employees	--	--
Terminations	--	--
Total End of Month	13	63

SANITATION

A total of 1187 tons of waste material was collected and disposed of during May. Memorial Day fell on Saturday, and collection from commercial establishments was suspended on that day.

ROADS AND STREETS

The first course of a light bituminous surface has been laid on Kadlec Road from Van Giesen to McMurray; McMurray from Jadwin to Stevens; and the boat launch ramp on Bradley Road extended. The second and final course has been laid on Spengler Road, from George Washington Way to Stevens; and the boat launch ramp on Newton Street east of George Washington Way.

The schedule for the 1953 Seal-Coat Program has been published and co-operation of the residents on the 10 miles of streets has been requested. The work will be under way from June 3 to June 17 inclusive.

The traffic hazard at the intersection of Swift and Cottonwood, caused by a difference of 6.5 inches between the grade of the crown on Cottonwood and the grade of the valley gutter on the east side of Cottonwood where it crosses Swift, has been corrected. This was accomplished by installation of two catch basins and connecting pipe which act as an inverted siphon to carry drainage formerly flowing thru the valley gutter, and raising of the grade from the centerline of Cottonwood at the intersection to a point on Swift 40' to the east.

The small wooden bridge over the irrigation ditch on Kadlec Road, which was too narrow and was in need of repair was removed and a

DOMESTIC WATER (Continued)

Production and consumption records for the month are as follow:

DOMESTIC WATER

	Well Production Million Gallons	Av. Daily Production	Total Consumption Million Gallons	Av. Daily Consumption
Richland	156.0204	5.0329	358.2500	11.5565
North Richland	178.2600	5.7503	48.4104	1.5616
Columbia Field	112.0404	3.6142		
300 Area			41.3586	1.3341
TOTAL	446.3208	14.3974	448.0190	14.4522

SEWERAGE

Normal operations and maintenance were continued.

Exterior and interior painting of all buildings and exterior painting of digestors has been started and will continue as weather conditions and work load permit.

Flow meter readings at the treatment plant for the month of May are as follow:

SEWAGE

	Total Sewage Flow Million Gallons	Average Daily Flow Million G.P.D.	Average Rate of Flow Gallons Per Minute
Plant No. 1	36.000	1.161	806
Plant No. 2	79.665	2.570	1785
TOTAL	115.665	3.731	2591

IRRIGATION SYSTEM

All pressure irrigation systems have been activated and are in service.

Control of aquatic weed growth in the canal system has required chaining of ditches and injection of chlorine. Heavy weed growth had restricted water flow considerably at several locations.

1204158

RECREATION AND CIVIC AFFAIRS UNIT

MONTHLY REPORT

MAY, 1953

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Beginning of Month	3	2-1/2
New Hires	0	0
Terminations	0	0
Transfers - IN	0	0
OUT	0	0
	3	2-1/2

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of May 31, 1953:-

Administration	7
Principals & Supervisors	14
Clerical	25
Teachers	286
Health Audiometer	1
Cooks	42
Nursery School & Extended Day Care	0
Bus Drivers	1
Maintenance	20
Operations	42
	438

CLUBS AND ORGANIZATIONS

As of May 31, 1953, the employees of the listed organizations, exclusive of those included in the Real Estate, Commercial and Other Properties Unit Report, include;-

Youth Council	1
Boy Scouts	1
Campfire Girls	1
Hi Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	2
Chamber of Commerce	1
	11

1204159

The number and types of organizations presently served by the Recreation and Civic Affairs Unit include:-

Business and Professional Organizations		23
Churches and Church Organizations		27
Civic Organizations		19
Schools		10
Fraternal Organizations		25
Political Organizations		5
Recreation and Social Clubs -	Alumni	3
	Arts, Music, Theater	11
	Bridge	3
	Dance	5
	Garden	3
	Hobby	9
	Social	11
	Sports	19
Veteran and Military Organizations		14
Welfare Groups		7
Youth - Boy Scouts		20
Girl Scouts		49
Campfire Girls		36
Miscellaneous		15
		314

RECREATION

The regular monthly meeting of the Parks and Recreation Board was held on May 7, 1953 at the Community House. It was recommended by the Board that a service charge be levied against groups sponsoring community events which result in abnormal services and cleanup of the area by the Public Works Unit. The Board also recommended that 14 sections of portable bleachers be made available for use at the Little League and Ponly League baseball fields. The next regular meeting of the Board is scheduled for June 3, 1953.

On May 25, 1953, the first public use of the Columbia Playfield was made by the Richland Knights of Columbus during a "play night."

The Little League Baseball Jamboree was held on May 2, 1953 at the Memorial Softball Field and on May 30, 1953, the American Legion League Baseball Organization held their Jamboree at the Columbia Baseball Field.

The Triple "O" Softball League, sponsored by this Unit, began on May 13, 1953 with eight teams in action.

The Annual School Boy Patrol Picnic was held on May 29, 1953 at Riverside Park.

The Memorial Softball League began play on Sunday, May 10, 1953, at Memorial Softball Park.

1204160

On May 30, 1953, the Richland Light Opera Club sponsored a picnic for approximately 200 persons at Columbia Playfield.

The Youth Square Dancing Program and the Elementary Recreation Program came to a close on May 1st.

On May 13, and 14, 1953, the Richland Chapter of the Instrument Society of America sponsored a Vendors Show at the Community House. 61 Displays with 163 vendors representing 75 companies was set-up in the Social Hall and Games Room of the Community House. Approximately 3500 people attended the show.

The Richland Gardenaires held a Garden Show in the Community House on May 16 and 17, 1953. Approximately 600 persons witnessed the show.

During the early part of May, Wellsian Lake was treated with commercial fertilizer by the Richland Rod and Gun Club.

ATTENDANCE - OTHER THAN COMMUNITY HOUSE

	Children	Adults	Total
Sponsored Programs		264	264
Special Events	1,052	698	1,750
Permit Groups	8,776	6,615	15,391
Totals For Month	9,828	7,577	17,405
Fiscal Year Totals To Date	57,230	50,578	107,808

ATTENDANCE - COMMUNITY HOUSE

Sponsored Programs	4,163	1,120	5,283
Special Events	681	4,401	5,082
Permit Groups	70	1,097	1,167
Totals For Month	4,914	6,618	11,532
Fiscal Year Totals To Date	63,698	37,650	101,348

GRAND TOTALS	This Month	Cumulative To-Date
I. Outside Total	17,405	107,808
II. Community House	11,532	101,348
III. Grand Total	28,937	209,156

1204161

RICHLAND PUBLIC LIBRARY

MAY 1953

ORGANIZATION AND PERSONNEL	Exempt	Non-Exempt
Employees - Beginning of Month	4	6½
Transfers In	0	0
Transfers Out	0	0
New Hires	0	½
Terminations	0	1
End of Month	4	6

GENERAL

Circulation

Books	12,295	(Adult -7,240; Juvenile - 5,055)
Magazines	369	
Pamphlets	51	
Records	1,043	
Interlibrary Loan	45	
Grand Total	13,803	

Current Book Stock

Books added this month	946	(Adult - 318; Juvenile - 628)
Books dropped this month	18	(Adult - 4; Juvenile - 14)
Grand Total	25,607	

Registration

Adult	119
Juvenile	81
Total	200
Total Registered Borrowers	12,984

Children's Story Hour Attendance 158 (pre-school)

Library Group Visits 52 (Spalding School - 4th grade 28; Spalding School Library Club 24)

1204162

Sixteen meetings were held in North Hall this month. In addition, the Allied Arts Exhibit of local art and a Richland School art exhibit have been on display in North Hall.

The Tuesday and Wednesday pre-school story hours were discontinued May 20. As a culmination of pre-school story hour program for the year and in celebration of the Library's second birthday, a party for the Library's pre-school patrons was given on Saturday, May 23. Eighty-five children attended the party. This is the first of the children's special activities sponsored by the Richland Chapter of the American Association of University Women.

In coordination with the community recreation program, the Children's Librarian will have a story hour in Riverside Park on Tuesdays and Fridays at 2:00 P.M. starting Tuesday, June 9, and continuing for the summer.

1204163

RICHLAND POLICE DEPARTMENT

MAY 1953

ORGANIZATION	Exempt	Non-Exempt
Employees - Beginning of Month	18	33
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminatiins	0	0
Total - End of Month	18	33

GENERAL

Several officers of the Richland Police Department attended the Yakima River Peace Officers meeting held in Yakima on May 1.

Sergeant W. W. Kerr of this department attended a two weeks Basic Law Enforcement Training School sponsored by the F.B.I. at Fort Lewis, Washington

A new Polaroid Land Camera has been added to our photographic equipment, replacing a Speed Graphic camera which has been returned to the G. E. Photo Unit. This Polaroid camera will enable police personnel to obtain a satisfactory photograph of a scene before leaving the scene in question.

The annua. School Boy Patrol picnic, sponsored by the Police Athletic League and the American Legion Auxiliary was held May 29. A trophy for outstanding appearance was presented by the Police Athletic League to Jason Lee Elementary School, and Marcus Whitman Elementary School won the trophy for outstanding performance of duty, which was presented by the American Legion. Individual awards for outstanding school boy patrol were presented to two boys from each school. Certificates were also presented to each of the patrol boys.

The annual Teen-age Road-E-O, sponsored by the Junior Chamber of Commerce, was held on May 24. The top honors were won by the only junior high school student entered in the contest. This student will participate in the state competition to be held later this summer.

During the month of May, the Richland Safety Council inaugurated the Mr. Jay Walker campaign, a program designed to further pedestrian safety.

Several traffic safety meetings were conducted by the Traffic Office this month at which safety talks were given by Lt. Miller and Ptm. Metz.

Three groups of Scouts were escorted through Police Headquarters during the month of May.

120164

TRAFFIC

Richland	1953 April	1953 May	1952 April	1952 May	1953 Total to Date	1952 Total Same Period
Reportable accidents	30	18	22	17	110	131
Property damage accidents	26	12	16	15	95	112
Injury accidents	4	6	6	2	15	18
Total persons injured	4	12	6	4	21	24
Fatal accidents	0	0	0	0	1	1
Accidents - Daylight hours	17	14	18	9	69	78
Darkness	13	4	4	8	41	52
Accidents - Business district	15	6	7	6	44	41
Residential "	13	7	10	11	47	77
Other "	2	5	5	0	13	13
Accidents investigated	22	13	14	12	71	92
Criminal complaints filed	19	12	10	10	57	71
Violations contributing to accidents:						
Negligent driving	8	3	4	2	17	19
Fail.to yield r.o.w.	7	5	7	7	37	37
Following too closely	3	2	4	1	17	16
Drunk driving	1	0	0	1	1	2
Pedestrian violation	1	1	0	0	3	0
Inattention to driving	1	0	1	0	1	7
Reckless driving	1	1	2	0	4	6
Unsafe speed	1	2	0	3	5	32
Improper backing	0	3	1	2	9	9
Disregard. stop sign	0	1	0	0	5	1
Hit and run	0	0	0	1	1	1
Improper passing	0	0	2	0	2	4
Improper turn	0	0	0	0	0	2
Failure to signal	0	0	0	0	0	1
Wide right turn	0	0	0	1	0	1
Traffic Safety meetings	5	17	18	5	36	71
Attendance, traffic films	585	590	2620	205	3220	4575
North Richland:						
Reportable accidents	9	8			42	
Property damage	8	4			34	
Persons injured	1	4			8	

Richland	1953 April	1953 May	1953 Ave.Per Accid. April	1953 Ave.Per Accid. May	1952 Ave.Per Accid. April	1952 Ave.Per Accid. May
Accident property damage	$5,239.21	$6,227.55	$174.64	$345.98	$207.73	$328.82

1204165

TRAINING

There was no range activity by members of the Richland Police Department during the month of May.

ACTIVITIES AND SERVICES

	April		May	
	Richland	No.Richland	Richland	No.Richland
Bank escorts and details	2	4	1	4
Bicycles impounded	3	0	0	0
Bicycle violations, other	0	0	1	0
Bicycles registered	46	180	542	0
Children lost or found	14	1	20	4
Complaints investigated (no enforc.action)	25	3	21	2
Deaths reported	1	0	0	0
Dog, cat, loose stock complaints	5	0	3	2
Dogs, cats reported lost or found	8	0	7	0
Doors and windows found open in facilities	55	44	35	59
Emergency messages delivered	14	82	12	83
Fires investigated	11	2	3	4
Guns registered	11	0	1	0
Law enforcement agencies assisted	1	1	4	0
Letters of inquiry	97	0	69	0
Miscellaneous escorts	9	3	7	3
Persons injured by dogs	5	0	2	0
Plant departments assisted	17	3	6	0
Prisoners processed through Jail	27	8	16	14
Private individuals assisted	4	1	17	2
Property lost or found	24	1	13	0
Records inquiries	91	0	92	0
Reports processed through Records Section	269	76	204	122
Street lights out reported to Electrical	87	39	87	45
Total	826	448	1163	344

1204166

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
(RICHLAND - NO. RICHLAND)
May 1953

OFFENSES	KNOWN Rich.	KNOWN No. Rich.	UNFOUNDED Rich.	UNFOUNDED No. Rich.	CLEARED OTHER* Rich.	CLEARED OTHER* No. Rich.	CLEARED ARREST Rich.	CLEARED ARREST No. Rich.
PART I								
1. Murder								
2. Rape								
3. Robbery								
4. Aggravated Assault								
5. Burg.-Break.&Entry	3	1	2	-	-	-	-	-
6. Larceny Over $50.00	1	3	-	-	-	-	-	-
Under $50.00	15	9	1	-	2	-	2	1
7. Auto Theft	-	-	-	-	-	-	-	-
TOTAL PART I CASES	19	13	3	-	2	-	2	1
PART II								
8. Other Assaults	1	3	-	-	-	-	1	2
9. Forgery & Counterfeit	-	1	-	-	-	-	-	1
10. Embezzlement & Fraud	-	-	-	-	-	-	-	-
11. Stolen Prop:Buy:Rec.	-	-	-	-	-	-	-	-
12. Weapons:Carry:Poss.	-	-	-	-	-	-	-	-
13. Prostitution	-	-	-	-	-	-	-	-
Sex Offenses	-	1	-	-	-	-	-	1
Offenses Ag.Fam.&Child	-	-	-	-	-	-	-	-
16. Narcotics-Drug Laws	-	-	-	-	-	-	-	-
17. Liquor Laws	-	-	-	-	-	-	-	-
18. Drunkenness	3	5	-	-	-	-	3	5
19. Disorderly Conduct	-	-	-	-	-	-	-	-
20. Vagrancy	-	-	-	-	-	-	-	-
21. Gambling	-	-	-	-	-	-	-	-
22. Driving While Intox.	4	6	-	-	-	-	4	6
23. Viol. Rd.&Dr. Laws								
Fail to Stop & Identify	3	1	-	-	-	-	1	-
Speeding	34	6	-	-	1	-	33	6
Stop Sign	20	6	-	-	-	-	20	6
Reckless Driving	3	-	-	-	-	-	3	-
Right of Way	8	3	-	-	1	-	7	3
Negligent Driving	14	5	-	-	-	-	14	5
Defective Equip.	5	-	-	-	2	-	3	-
Illegal Passing	1	-	-	-	-	-	1	-
Improper Signal	1	2	-	-	-	-	1	2
Fail. to Keep to Right	1	-	-	-	-	-	1	-
24. Parking	30	69	-	-	8	38	22	31
25. All Other Traff. Viol.	6	5	-	-	-	5	6	-
26. All Other Offenses:								
Malicious Mischief	1	1	-	-	1	1	-	-
Vandalism	7	3	1	-	1	2	-	-
Disturbance	1	-	-	-	1	-	-	-
Bike Violations	1	-	-	-	1	-	-	-
Dest. of Pers. Prop.	-	1	-	-	-	-	-	1
Investigation	8	3	-	-	8	3	-	-
Family Disturbance	-	1	-	-	-	1	-	-
Public Nuisance	2	1	-	-	-	-	2	1
TOTALS	154	123	1	-	24	50	122	70

1204157

OFFENSES	KNOWN Rich.	KNOWN No. Rich.	UNFOUNDED Rich.	UNFOUNDED No. Rich.	CLEARED OTHER* Rich.	CLEARED OTHER* No. Rich.	CLEARED ARREST Rich.	CLEARED ARREST No. Rich.
Totals brough forward from page LF-4	154	123	1	-	25	50	122	70
26. All Other Offenses:								
Prowler	2	-	-	-	1	-	-	-
Neighborhood Trouble	1	-	-	-	1	-	-	-
Illegal Use of Guns	1	-	-	-	1	-	-	-
Viol. of Dog Ordinance	4	-	-	-	-	-	4	-
Pickup for Outside Agency	-	1	-	-	-	-	-	1
Investigation	8	3	-	-	8	2	-	-
Family Disturbance	-	1	-	-	-	1	-	-
27. Suspicion								
TOTAL PART II	170	128	1	-	36	53	126	71
PART III								
28. Missing Persons	3	2	-	-	3	2	-	-
Lost Persons	14	4	-	-	14	4	-	-
Lost Animals	3	1	-	-	-	-	-	-
Lost Property	24	1	-	-	19	-	-	-
29. Found Persons	-	-	-	-	-	-	-	-
Found Animals	-	-	-	-	-	-	-	-
Found Property	12	-	-	-	7	-	-	-
TOTAL PART III	56	8	-	-	43	6	-	-
ART IV								
Fat.M.V.Tr.Acc.								
. Pers.Inj.M.V.Tra.Acc.	6	4						
32. Prop.Dam.M.V.Acc.	12	4						
33. Other Traffic Acc.								
34. Public Accident)								
35. Home Accidents)	No Accurate Statistics Kept							
36. Occupational Acc.)								
37. Firearms Accidents		1						
38. Dog Bites	2							
39. Suicides								
40. Suicide Attempts	2							
41. Sud.Death.&Bod. Found								
42. Sick Cared For								
43. Mental Cases	1							
TOTAL PART IV	23	9						
COMPOSITE TOTALS								
PART I,II,III,IV CASES	268	158	4	-	81	59	128	72

*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 was no arrest.

Property reported stolen	Richland	$337.08
Property reported stolen	No. Rich.	$396.00
Property recovered	Richland	$ 53.83
Property recovered	No. Rich.	$ 25.00

1204168

MONTHLY REPORT — RICHLAND POLICE DEPARTMENT — JUVENILES INVOLVED — May 1953

OFFENSE	NO. CASES	JUVENILES	SEX	4	8	10	11	12	13	15	16	17
RICHLAND												
Breaking & Entering	1	1	M								1	
Third Degree Assault	1	2	M								2	
Larceny	4	7	M				2	1	1			3
Vandalism	1	1	M					1				
Malicious Mischief	1	1	M							1		
Prowler	1	2	M							2		
TOTALS	9	14					2	2	1	3	3	3
NORTH RICHLAND												
Larceny	1	1	F							1		
Vandalism	1	3	M	1	1	1						
TOTALS	2	4		1	1	1				1		

RICHLAND POLICE DEPARTMENT
(COMMUNITY OF RICHLAND)

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

Wash.Ore. & Calif. Six Months (Jan.-June 1952)	One Month Average	1952 Jan. - June	1953 March	1953 April
Murder .405	.067	-	-	-
Robbery 10.850	1.808	-	-	-
Agg. Assault 8.500	1.416	-	-	-
Burglary 67.975	11.329	8	6	3
Larceny 210.800	35.131	163	18	16
Auto Theft 34.475	5.745	4	-	-

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts.

State of Washington Six Months (Jan.-June 1952)	One Month Average	1952 Jan. - June	1953 March	1953 April
Murder .355	.059	-	-	-
Robbery 10.000	1.666	-	-	-
Agg. Assault 2.650	.441	-	-	-
Burglary 62.575	10.429	8	6	3
Larceny 209.125	34.854	163	18	16
Auto Theft 31.650	5.275	4	-	-

The percentage of offenses committed by persons under the age of 25 years is shown:

National Average Percentage of cases Jan. - June 1952	Richland 1952 Jan. - June	Richland 1953 March	1953 April
Robbery 55.1	-	-	-
Burglary 60.2	38%	83%	33 1/3%
Larceny 43.4	12%	17%8	25 %

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."

120170

RICHLAND POLICE DEPARTMENT
(COMMUNITY OF NORTH RICHLAND)

Number of offenses known to police per 10,000 inhabitants in cities of 10,000 persons:

Wash.Ore. & Calif. Six Months (Jan.-June 1952)		One Month Average	1952 Jan. - June	1953 March	1953 April
Murder	.162	.027	-	-	-
Robbery	4.34	.723	-	-	-
Agg. Assault	3.40	.566	-	-	-
Burglary	27.19	4.531	1	-	1
Larceny	84.32	14.053	45	10	12
Auto Theft	13.79	2.298	2	-	-

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts.

State of Washington Six Months (Jan.-June 1952)		One Month Average	1952 Jan. - June	1953 March	1953 April
Murder	.142	.023	-	-	-
Robbery	4.01	.668	-	-	-
Agg. Assault	1.06	.176	-	-	-
Burglary	25.03	4.171	1	-	1
Larceny	83.65	13.941	45	10	12
Auto Theft	12.66	2.111	2	-	-

The percentage of offenses committed by persons under the age of 25 years is shown:

National Average Percentage of Cases Jan. - June 1952		No. Richland 1952 Jan. - June	No. Richland 1953 March	No. Richland 1953 April
Robbery	55.1	-	-	-
Burglary	60.2	-	-	-
Larceny	43.4	-	20%	8%
Auto Theft	69.4	-	-	-

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the lower age group because of the practice of some jurisdictions not to fingerprint youthful offenders."

120471

RICHL LICE DEPARTMENT
RICHLANL JSTICE COURT CASES
MAY 1953

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES DISM.	WARR ISS.	SENT JAIL	SENT SUSP.	LIC. REV.	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
DEFECTIVE EQUIPMENT	7	4		2	1					2	1	$	$ 20.00	$ 20.00
DRIVERS LICENSE	26	11	8	5	2					2	21	5.00	22.50	22.50
DRUNKEN DRIVING	5	5					2	1	4	1			227.50	
EXCESSIVE NOISE	1	1									1			
F.T. KEEP TO RIGHT	1			1										
F.T.S. & I.	1			1										
F.T.Y.R.O.W.	6	5			1								62.50	30.00
ILLEGAL PARKING	23	5	11	6	1							35.00	23.00	17.50
ILLEGAL PASSING	1				1									
ILLEGAL TURN	1		1							1		7.50		
IMPROPER PLATES	4	2	2								3		15.00	10.00
NEGLIGENT DRIVING	22	13	5	3	1		1			6		130.00	242.50	47.50
NO REGISTRATION	3	2		1						1	3			
RECKLESS DRIVING	6	4		1	1				4	1			145.00	
SPEEDING	38	11	25	2						3		286.50	112.50	
STOP SIGN	22	9	12	1						4	1	65.00	53.50	17.50
DOG ORDINANCE	4	2			2					1			30.00	15.00
FORGERY	1			1										
PETIT LARCENY	1	1										12.50	25.00	
POSS. OF STLN PROPERTY	1			1										
PROCEEDING TO PREVENT COMMISSION OF CRIME	1				1									
PUBLIC INTOXICATION	2		2									12.50	12.50	
PUBLIC NUISANCE	3		2		1							30.00		
RESISTING OFFICER	1	1					1		1		1			
THIRD DEGREE ASSAULT	2			2										
TOTAL	183	76	68	27	12		4	1	9	22	31	$584.00	$991.50	$180.00

TWO RECKLESS DRIVING CASES AMENDED TO NEGLIGENT DRIVING.

RICHLAND POLICE DEPARTMENT
NORTH RICHLAND JUSTICE COURT CASES
MAY 1953

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES DISM.	WARR. ISS.	SENT JAIL	SENT SUSP.	LIC. REV.	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
DRIVERS LICENSE	7	3	3		1					2	5	$	$ 11.00	$ 7.50
DRUNKEN DRIVING	6	3		3			1		2				152.50	
DRVG W/OUT FURNISHING PROOF OF FINANCIAL RESPONSIBILITY AFTER REV. OF DR. LIC.	1	1					1							
F.T. SIGNAL	1			1										
F.T.Y.R.O.W.	3	2	1									5.00	25.00	
ILLEGAL PARKING	15	2	7	6								26.00	7.00	3.50
IMPROPER SIGNAL	1		1									10.00		
NEGLIGENT DRIVING	5	2	2		1					2		40.00	42.50	
SPEEDING	4	1	3									48.00	7.50	
STOP SIGN	8	4	3		1					1	1	15.00	19.50	
ATTEMPTED THEFT	2				2					2				
PUBLIC INTOXICATION	5	4	1									17.50	55.00	
PUBLIC NUISANCE	1	1											15.00	
SODOMY	1			1										
THIRD DEGREE ASSAULT	2	1		1									50.00	50.00
TOTAL	62	24	21	12	5		2		2	7	6	$161.50	$385.00	$61.00

LF-10

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
MAY, 1953

MOTOR VEHICLE ACCIDENTS REPORTABLE:

	Total Number		Fatilities		Major Injuries		Minor Injuries	
	Apr	May	Apr	May	Apr	May	Apr	May
Richland	30	18	0	0	0	1	4	5
North Richland	10	8	0	0	0	0	1	4

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Cases	
	Apr	May	Apr	May	Apr	May	Apr	May
Richland	8	3	7	5	2	1	13	9
North Richland	1	1	3	2	1	0	5	5

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		Stop Sign		Parking		Imp. License		Def. Equipment		Other V.		Totals	
	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May
Richland	3	1	2	0	5	8	0	0	4	2	2	0	16	11
North Richland	0	0	0	0	32	38	0	4	0	3	0	1	32	46

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		Stop Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Drvg.		Parking V.		Other V.		Totals	
	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May	Apr	May
Richland	15	35	18	18	5	4	2	6	10	6	19	16	8	23	26	39	103	147
No.Richland	6	4	5	7	1	6	2	0	3	3	5	3	16	15	11	8	49	46

TRAFFIC VOLUME: Average 24-Hour Traffic Volume Count for week ending May 29, 1953, George Washington Way at Richland Electric 9,936 cars.

NOTE: TRAFFIC CONTROL STATISTICS SHOW ORIGINAL CHARGES ONLY.

4-11-4627-1

If-11

COMMUNITY OPERATIONS

RICHLAND FIRE DEPARTMENT

MAY 1953

Organization and Personnel	Exempt	Non-Exempt
Employees - Beginning of Month	68	0
Transfers In	0	0
Transfers Out	1	0
New Hires	1	0
Terminations	0	0
End of Month	68	0

Fire Protection		Richland	North Richland
Fire Loss (Estimated):	Government	$3,102.36	$ 33.50
	Private	1,977.00	40.02
	May Total	$5,079.36	$ 73.52
	1953 Total	$8,870.36*	$2,677.15

* Not including February 18th fire loss on Bauer Construction Co. warehouse, final figures not yet available.

Response To Fire Alarms	17	23
Investigation of Minor Fires and Incidents	5	2
Ambulance Responses	29	
Inside Schools or Drills	25	6
Outside Drills	5	8
Safety Meetings	8	3
Security Meetings	4	1
Fire Alarm Boxes Tested	180	96

During the May 24-31 Visitors' Week at the new Central Fire Station, approximately 1360 people were conducted on tours of the station. Duty personnel explained the apparatus housed in this station, alarm receiving equipment, displays of firefighting equipment and a display of Richland's fire prevention awards. Visitors included members of 21 outside fire departments and officials from seven neighboring communities.

Three Boy Scouts were examined for Firemanship Merit Badge.

Fire Prevention

A hundred thirteen Richland and 73 North Richland buildings were inspected during May. These inspections resulted in 41 hazard reports. Three hundred twenty eight fire extinguishers were inspected, 88 recharged, 72 removed and 72 installed. Sixty fire hose standpipes were also inspected.

Conferences were held with the building owner regarding installation of sprinkler systems in the J. C. Penney Co. basement stock room.

1204175

At Fire Marshal's request, Chamber of Commerce bulletin to all merchants contained a recommendation for seasonal servicing of all air conditioning equipment.

The Assistant Fire Marshal attended the regular monthly meeting of the Richland Traffic Control Committee.

Construction data on 13 Uptown commercial buildings was completed for Fire Department reference.

A Washington Surveying and Rating Bureau engineer conferred with the Fire Marshal on insurance ratings of several Richland commercial buildings.

Slashing of standpipe fire hose in the Recreation Hall was reported to the Richland Police and Commercial Real Estate.

AEC Safety was asked to have the alarm system in the new School Maintenance Shop building connected to the Richland fire alarm system.

Assistant Fire Marshal, on duty May 13th at the Kadlec Hospital Open House, explained a working model of the Hospital alarm devices to over 500 visitors.

Following an electric meter explosion May 15th at Campbell's No. 3 Market, AEC Safety was provided with inspection records to attest that overloaded electrical circuits in this facility had been detected and reported several months previously.

At the Administrator's request, the Assistant Fire Marshal signalled a surprise fire drill at Kadlec Hospital on May 22nd. The drill was quite satisfactory.

Two meetings were held with Maintenance and Plant Fire Protection representatives on the planned test flushing of the 703 Building sprinkler systems.

Housing was asked to obtain removal of a hedge entirely surrounding a fire hydrant at Horn and Whitten.

1204176

COMMUNITY OPERATIONS AND REAL ESTATE DEPARTMENT
ENGINEERING UNIT

MAY - 1953

PERSONNEL	Exempt	Non-Exempt*	Total
Employees - Beginning of Month	6	3**	10
Employees - End of Month	6	3***	9

* - One employee on permanent loan
** - Employee transferred in.
*** - Employee transferred out.

The Status of Active Projects is as Follows:

C-486 - 1952 Street Improvement Program - Complete, except for corrective work.

C-488 - Additional Erosion Control and Development, Public Areas, F.Y. 1952 - Shelterbelt 95% complete. Invitation to bid announced for construction of Jason Lee Playground.

K-749 - Installation of Radio Equipment, North Richland Fire Station - Awaiting delivery of equipment.

K-753 - Flow Control Valve, Sewage Treatment Wet Well - Awaiting delivery of equipment.

K-756 - Installation Traffic Light, Symons & George Washington Way - Fully scoped.

-728 - Installation of Insulated Fire Alarm Wire - 65% complete. To be completed as Fire Department furnishes locations.

S-760 - Knight Street Sanitary Sewer - 5% complete. Work progressing.

Status of Active ESR's:

396-CA - Site Map C.A.P. Field - Cancelled 5-28-53.

565-RC - Site South of Tract House 0-1224 - Cancelled 5-18-53.

571-M - Free Methodist Church - Progressing slowly, 99% complete.

572-M - First Baptist Church - Progressing slowly, 76% complete.

574-M - Assembly of God Church - Progressing slowly, 55% complete.

581-RC - "As Built" Plans for LDS Church - Plans received for checking. Deferred or other work.

588-RC - Alteration Permits - An open active file.

591-M - Preparation of Advice Pamphlet for Contractors, 75% complete. Work progressing.

1204177

ENGINEERING UNIT

612-RC - "As Built" Plans for Richland Thrifty Drug - Plans received for checking, Deferred for other work.

616-M - Level Control Valve, Sewage Treatment Plant - ESR closed into Project K-753.

628-M - Prepare "As Built" Plans for Richland Fire Alarm System - Given to Engineering Department for completion with other work.

630-M - Correction of Master Plan - An open active file.

631-M - "As Built" Plans for Sewer System - Closed 5-29-53.

632-M - "As Built" Plans for Water System - Closed 5-29-53.

633-M - "As Built" Plans for Streets - 60% complete.

634-M - Engineer Liaison, Richland Water Expansion - Work progressing. Following construction closely by inspections and preparing data as requested.

657-M - Review Richland Fire Station - 100% complete.

663-M - Plan Checking, Richland Development Co., Block 5, North Commercial Area - 99% complete. Final inspection to be made.

674-RC - Uptown Parking Lot Study - Deferred for other work.

676-M - Sidewalks, Aprons, Drives in the Vicinity of Swimming Pool and Bathhouse - Awaiting decision by A. E. C..

686-RC - Utility Lines, Vacant Commercial Sites - An open active file.

689-RC - "As Built" Plans, CD Joseph Building #2 - Awaiting "As Built" plumbing plans.

692-RC - Propane Gas Installation, Bauer-Day Contract - 100% complete.

697-M - Plans, Specifications, and Inspections, Drive-in Theater - 100% complete.

698-RC - Plans, Specifications, and Inspections, Rug Cleaning Plant - 100% complete.

705-RC - Field Supervision, Parking Lots, Chief Joseph Jr. High School - 100% complete.

706-RC - Plans, Specifications, and Inspections, Medical-Dental Properties, Inc. - 99% complete. Building is open for business.

710-RC - Remaining Frontage on Stevens Drive, Anderson Motors - 100% complete.

711-PW - Study and Estimate, Sewer Main, Swift Boulevard - Deferred for other work.

712-M - Survey of Richland Washington, Liaison and Assistance - Giving assistance as requested.

715-M - Television Antennae - An open active file.

1204178

ENGINEERING UNIT

722-M - Erosion Control & Development of Public Areas, F.Y. 1953 - Preliminary Design complete.

724-M - Preliminary Engineering, Hospital Grounds Improvements - Transferred into ESR 807.

725-RC - Plans, Specifications, and Inspections, McVicker Bldg., Lee and Goethals - Cancelled 5-28-53.

726-M - Plans, Specifications, and Inspections, CD Joseph Bldg. #4, Richland Realty Co. - Construction progressing. 95% complete.

727-M - Preparatory Engineering, 1953 Street Development - McMurray Road design under study by A.E.C..

729-M - Plans, Specifications and Inspections, Grace Bacon Bldg. - Construction started. Partial permit given on basis of approved footing plans.

730-M - Plans, Specifications, and Inspections, Richland Realty Co., Symons & Jadwin - Construction progressing. 15% complete.

735-RC - Parking Lot Construction, Campbell's Bldg. #3 - 100% complete.

737-RC - Legal Description, Gillette Site, Lee and Gillespie - 100% complete.

742-M - Plans, Specifications, and Inspections, Addition to Standard Oil Co. Bldg. - 100% complete.

743-M - Locate water line, Van Giesen, West of Jadwin - 100% complete.

744-RC - Spokane Housing, Verify description of leases and street easements - 100% complete.

745-RC - Legal Description, Campbell's Lockers, 704 Comstock - 100% complete.

747-M - Preparatory Engineering - Float Control Valve at Sewage Lift Station - 96% complete.

748-RC - Extend water services, tap sewer line, FR Rice Site - 100% complete.

749-M - Installation of Radio Equipment, North Richland Fire Apparatus - ESR closed into Project K-749.

750-M - Preparatory Engineering, Alterations to Richland Public Library - Cancelled 5-1-53.

751-M - Preparatory Engineering, Increased Turning Radii, Knight & Goethals - 100% complete.

754-M - Preparatory Engineering, Air Conditioner, Columbia Playfield Shelterhouse - Cancelled 5-1-53.

755-M - Preparatory Engineering, Tie-in Richland & North Richland Fire Alarm Systems - Given to Engineering Department for completion with other work.

756-M - Preparatory Engineering, Installation of Traffic Light, George Washington Way and Symons - ESR closed and transferred to Project K-756.

759-RC - "As Builts" Richland Investment Company - Being completed.

1204179

ENGINEERING UNIT

765-RC - "As Builts" All Saints Episcopal Church - Deferred for other work.

767-M - Plans, Specifications, and Inspections, Joseph-Cannon Bldg., Lee & George Washington Way - Work progressing. 95% complete.

768-M - Plans, Specifications, and Inspections, Carl Peterson Bldg., Lee & Gillespie - Work progressing. 85% complete.

770-M - Latter Day Saints Storehouse, West Jadwin Street - Work progressing. 25% complete.

772-M - Alterations to Diettrich's Grocery - Work progressing. 98% complete.

774-M - Rennovation of Structures Below Flood Elevations, Riverside Park and Vicinity - Help open pending decision on further work.

775-RC - Legal Description, Randolph Insurance - 90% complete.

777-RC - Revised Legal Description, Kennell-Ellis Site - 90% complete.

779-M p- Plans, Specifications, and Inspections, Richland Labor Temple - Work progressing. 28% complete.

781-RC - American Legion, Utility Extension - 100% complete.

783-M - Plans, Specifications, and Inspections, American Legion Building - Work progressing. 50% complete.

785-RC - "As Builts" McVicker Bldg. #4 - Deferred for other work.

789-RC - Extend Water Service to Richland Labor Temple - Work order issued. 95% complete.

790-M - "As Builts" General - Work progressing. To be cancelled into Work Authority of A.E.C., dated April 30, 1953.

791-M - Irrigation System Disposal Estimate - ESR closed into ESR 634.

792-RC - Legal Description, Block 2, Uptown Business District - 75% complete.

793-M - Loaned Labor(Comm. Real Estate) - 100% complete.

794-RC - Legal Description, Plot rear of Kennell-Ellis Building - 90% complete.

795-RC - Study and Cost Estimate - Plot back of Kennell-Ellis - 100% complete.

796-RC - Legal Description - Plot East of Washington State Liquor Store - 5% complete.

797-RC - Legal Description - Plot between Tastee Freez and Grace Bacon Roller Rink - 75% complete.

798-RC - Legal Description - Plot south of Tri-City Herald Building - 10% complete.

799-RC - Legal Description - Plot of land known as the Binyon Building - 50% complete.

ENGINEERING UNIT

800-RC - Legal Description - Plot Northeast Corner Duportail and Hartford - 35% complete.

801-RC - Legal Description - Plot adjacent to By's Drive-In and Standard Service Station - Not yet started.

802-RC - Legal Description, Veterinary Hospital Site - Not yet started.

803-M - Profile grade, 300 Block on Craighill - 90% complete.

804-RC - Study - Roof Richland Lutheran Church Building - Passed to Engineering Department for completion.

805-RC - Plans, Specifications, and Inspections, Cannon-Joseph Bldg., West of Kennell-Ellis - Plans not received.

806-RC - Plans, Specifications, & Inspections, Richland Development Co., Block #2, Uptown Business District - Partial plans received. Construction started, 2% complete.

807-M - Preliminary Engineering, Walks, Grading, Planting, Hospital Grounds - Design in progress.

808-M - 10" Feeder Main, 700 Area, Cost Estimate - 100% complete.

809-RC - Plans, Specifications, and Inspections, Parcell Bldg., Duportail and Hartford - Plans received 5-28-53.

810-RC - Extend water Service, Site rear of Kennell-Ellis - Not yet started.

811-RC - Extend water & sewer - Site Duportail and Hartford - Not yet started.

812-RC - Bring up-to-date, Occupancy Map, H-11-1383 - Not yet started.

813-RC - Legal Description--Coordinates of Plot, Richland Heights Baptist Church - Not yet started.

814-RC - Legal Description, Richland Transfer & Storage - Not yet started.

815-RC - Plans, Specifications, and Inspections, Veterinary Hospital - Not yet started.

816-RC - Plans, Specifications, and Inspections, Richland Transfer & Storage - Not yet started.

120181

REAL ESTATE SECTION

SUMMARY

MAY 1953

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Nonexempt	Exempt	Nonexempt
Real Estate Section				
330	2	1	2	1
Housing & Maintenance Unit				
331	5	19	5	17
333	13	134	13	136
Commercial Property Unit				
337	6	6	6	5
	26	160	26	159

Decrease in number of employees 1

GENERAL

A two bedroom prefab type dwelling house at 603 Windslow Avenue was damaged by fire May 17, 1953. The damage was so extensive that it was recommended and approved that the building be offered for sale.

1204182

HOUSING & MAINTENANCE UNIT

May, 1953

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month:	18 exempt	
	153 nonexempt	
	171	171
End of month:	18 exempt	
	153 nonexempt	
	171	171

1204183

RICHLAND HOUSING

HOUSING UTILIZATION AS OF MONTH ENDING MAY 31, 1953
USES OCCUPIED BY FAMILY GROUPS

	Conventional	A&J	T	Precut	Ranch	Prefab	Dorm Apts	A&J Apts	2BR Apt	Fourth Housing	Tract	Total
G.E.Employees	2208	257	9	381	809	1165	10	51	60	197	35	5182
Commercial Facilities	108	15	1	34	83	55		5	4	9	3	317
Community Activities	9			1	7	5					1	23
Medical Facilities	4	17			3	1			1	3		29
Post Office	6				2	12				1	3	24
AEC	84	26		23	59	15		5	3	16	3	234
Other Government	6	2			5	2					1	16
Schools	53			6	10	57		1	1	2		130
Charles T. Main	1			3	5	11				1		21
Kaiser Engineer	6	8			5					1		20
Atkinson Jones	2	3		1	3	1						10
Vitro Corporation	3	3			1			1				8
P.S.Lord	1				2					1		4
Minor Construction					1	3						4
Vernita Orchards											5	5
Newberry Neon	1	1										2
Urban-Smythe-Warren					2							2
Blaw-Knox		1		1								2
Universal Foods						1						1
Total	2492	333	10	450	997	1328	10	63	70	230	51	6034
Houses assigned leases written						2						2
Uses assigned, leases not written	8				3	11		1				23
Available for assignment						1						1
Total	2500	333	10	450	1000	1342	10	64	70	230	51	6060

	BEGIN MONTH	MOVED IN	MOVED OUT	END OF MONTH	DI
Conventional Type	2498	16	22	2492	-6
A and J Type	333	2	2	333	
"T" Type	10			10	
Precut Type	448	3	1	450	+2
Ranch Type	998	13	14	997	-1
Prefab Type	1337	22	31	1328	-9
Dorm Apts	10			10	
A&J Apts	64	1	2	63	-1
2BR Apts	69	4	3	70	+1
Fourth Housing	230	1	1	230	
Tract Houses	51			51	
Total	6048	62	76	6034	- 14

1204184

May 1953

DORMITORY

Dormitories:

	Beds Available	Vacant Beds	Occupied Beds
Men	616	7	609
Women	481	58	423*
Total	1097	65	1032*

*Includes 2 beds used for dormitory office space.

Waiting Lists

	Single Rooms	Double Rooms
Men	37	0
Women	68	0

Housing - Cancellations and Allocations

STRAIGHT CANCELLATIONS	
Voluntary terminations	21
R. O. F.	0
Discharge	1
Transfers	4
Retirement-divorce-misc.	0
Move off project	17
Deaths	1
Wherry Housing	1
TOTAL	45

ALLOCATIONS	
Houses allocated to new tenants	38
Exchanged houses	10
Moves	11
Turnovers	2
Total leases signed	61
Total cancellations	68
Houses assigned "As Is"	33
Houses sent renovation	22
Applications pending	693

1204185

TENANT RELATIONS PROGRESS REPORT

	Orders Incomplete as of April 30	Orders Issued 4-30 to 5-31	Total Orders Incomplete as of May 31, 1953
Service Orders	297	1622	198
Work Orders	728	339	856
Service Charges		232	

Principal work order loads

	Incomplete as of April 30, 1953	Incomplete as of May 31, 1953
Laundry tub replacement	12	6
Bathroom renovations (tub, tile, lino.)	107	96
Tileboard - bathroom	11	3
Kitchen floor linoleum	166	174
Kitchen cabinet linoleum	181	181
Shower stall	1	7

---

79 alteration permits were issued, as compared to 85 permits issued during April.

Install concrete walk	1	Install TV antenna	2
Install air conditioner	20	Install patio	4
Install automatic washer	13	Install oil burner	1
Install wall tile in bathroom	1	Install eave extension and arbor	1
Install automatic dryer	8	Install tool shed	1
Install water softener	3	Construct boat house	1
Install fence	8	Remove coal bin	1
Install exhaust fan	1	Change position of range receptacle	1
Sand and refinish floors	2	Install storage shed	1
Install sink and dishwasher	1	Change range and refer positions	1
Install back door	3	Install floor tile	1
Install outdoor light	2	Install 110v outlet	1

1043 inspections were made, as compared to 1300 made during April.

Alteration permits	174	Shower stalls	10
Bathtubs	1	Sidewalks	54
Cupboards	5	Sinks	28
Floor boards	11	Tileboard	1
Grass seed	19	Toilet seat	32
House siding	2	Topsoil	15
Leaking basement	2	Trailers	3
Linoleum	19	Walls	12
Paint	24	Cancellations	76
Porch & steps	37	Renovations	70
Screen doors	14	Shows (new tenants)	51
Dorms	80	Miscellaneous	303

1204186

REAL ESTATE MAINTENANCE PROGRESS REPORT

JUNE, 1953

WORK SUMMARY

JOB TYPE	ISSUE DATE	BACKLOG	JOBS COMP.	COMP. TO DATE F. Y. 1953
BATHTUBS	2-5-53	68	17	290
KITCHEN FLOOR TILE	11-20-52	189	0	297
BATHROOM TILE	1-6-53	3	0	60
KITCHEN SINK TOP	2-19-53	119	31	603
SHOWER STALLS	4-16-53	9	4	206
LAUNDRY TUBS	5-12-53	9	0	266
MAJOR SEWER STOPPAGES	5-18-53	8	8	254
ROOF COATING	11-13-52	7	0	106
REMOVE TREES	2-11-53	29	5	134
RENOVATION	5-20-53	4	9	252
WATER HEATERS	5-27-53	3	11	203
REBUILD PORCHES	On routine			
ASPHALT SERVICE WALKS	3-13-53	50	22	93
ASPHALT STEPS	5-19-53	3	3	153

1204187

MONTHLY PROGRESS REPORT
INTERIOR REDECORATING REPORT
FISCAL YEAR - 1953

TYPE UNIT	NO. UNITS SCHEDULED	COMPLETED THIS MONTH	COMPLETED TO DATE	BALANCE TO BE PAINTED
A	202	18	131	71
B	360	7	166	194
C	0	0	0	0
D	4	0	1	3
E	33	0	14	19
F	103	3	38	65
G	3	0	1	2
H	74	8	35	39
K	0	0	0	0
L	3	1	2	1
M	16	0	15	1
Q	110	1	106	4
R	124	2	120	4
S	12	0	12	0
T	6	0	0	6
U	17	0	14	3
V	103	0	90	13
Y	778	67	620	158
Z	42	1	31	11
1 BR.	4	0	2	2
2 BR.	9	0	9	0
3 BR.	4	0	3	1
TRACT	7	0	4	3
1 BR. APT	35	1	35	0
TOTAL:	*2049	109	1449	600

Scheduled Hours: 6,034
Actual Hours: 5,621

Exterior Painting of Precuts Completed 143
Dorm BOQ - 50% Complete

*1437 units scheduled for interior redecoration, Fiscal Year, 1953

1204188

PLUMBING SHOP (7 employees)

JOB DESCRIPTION	NUMBER COMPLETED
Replacements - Major fixtures:	
Bath tubs	40
Laundry tubs	9
Electric water heaters	20
Shower stalls (Plumbing For Sheet Metal)	14
Routine Plumbing Repairs	32
Plumbing for floor tile replacements	37
Cleared major sewer stoppages caused by tree roots	31
Routine steam repairs	24

Steam inspections once a week on dorms and government owned commercial buildings. Rearranging plumbing inventory.

SERVICE ORDER CREW (11 employees)

The following is a status report on Service Orders:

A.	On hand at the beginning of the month	128
B.	Received during the month	1,622
C.	Completed during the month	1,658
D.	On hand at the end of the month	92

E. A total of 414.4 man hours were spent on work orders.

1204139

RENOVATION & LABOR CREW (14 employees)

JOB DESCRIPTION	NUMBER COMPLETED
Housing units renovated	26
Dormitory rooms redecorated	15
Medical dental offices redecorated	9

Performed miscellaneous work including assisting the Plumbing Shop in sewer repairs. Also routine work in repairing side walks, removing trees, constructing steps, repairing compound, picking up drain oil from service stations, etc.

LINOLEUM CARPENTRY CREW (10 employees)

JOB DESCRIPTION	NUMBER COMPLETED
Replace bath wall tile	35
Replace bath floor tile	39
Repair bath floor tile	2
Replace kitchen floor linoleum	3
Replace kitchen sink top linoleum	42
Repair kitchen sink top linoleum	16
Replace work bench linoleum	14
Repair floor tile - Medical Dental Building	2
Repair bedroom linoleum	1
Repair laundry room linoleum	1
Replace kitchen sink	5
Repair window sill	1
Repair roof	31
Re-shingle roof	1
Apply roof coating	10
Replace flooring - Dorm W-2	1
Repair floor linoleum, laundry room - Dorm W-5	1
Replace floor - Western Union	1
Repair front porch	22
Raise slab	1
Repair threshold	1
Repair siding	2
Repair sidewalk - concrete	3

1204190

LINOLEUM CARPENTRY CREW (Continued)

JOB DESCRIPTION	NUMBER COMPLETED
Repair cabinet doors	1
Repair basement wall	4
Replace bins on linoleum truck	1
Install plate glass window - Pennywise Drug Store	1
Chempoint - Routine order	133
Chempoint - work orders	84

CARPENTER SHOP (15 employees)

JOB DESCRIPTION	NUMBER COMPLETED
Paint Touch-ups	95
Interior carpentry repair for paint (Housing Units)	32
Exterior carpentry repair for paint - ranch houses (Exterior Carpentry Repair Progress)	378
Ranch House screen doors repaired (Exterior Carpentry Repair Progress)	595
Ranch House screen doors replaced - New (Exterior Carpentry Repair Progress)	6
Exterior main doors repaired - Shop	7
Cabinet doors replaced	10
Cabinet drawers repaired - Shop	4
Time spent on office equipment, etc.	40.2 M.H.
Precut screen doors repaired	4
Time spent repairing dorm furniture	8.0 M.H.
Repair Fire Damage - Dorm W-2, Rm. 211	1

MECHANICAL SHOP

A. Millwright Crew: (4 employees)

JOB DESCRIPTION	NUMBER COMPLETED
Furnace service orders	79
Routine furnace inspection & lubrication	460

GENERAL: The C & K type house furnace fans have been inspected and lubricated—filter pads, belts, and oil bilters have been replaced where necessary. All of the Geo. Wash. Way Apartments have been inspected and lubricated. Cleaning of burner blower wheels on A & J type houses is about 90% complete.

| 204 | 91 |

B. Sheetmetal Crew: (2 employees)

JOB DESCRIPTION	NUMBER COMPLETED
Replacement of shower stalls	14
Replacement of gutters	17
Flashing coal hatches (ranch house)	13
Installed air conditioners	3

1204192

COMMERCIAL PROPERTY - REAL ESTATE SECTION
May, 1953

PERSONNEL - COMMERCIAL PROPERTY:

	May
Beginning of Month	12
End of Month	11
Net Change	-1

PERSONNEL - COMMERCIAL AND NONCOMMERCIAL FACILITIES:

	Commercial		Noncommercial		Total	
	Richland	North Richland	Richland	North Richland	Richland	North Richland
April	1,500	166	122	1	1,622	167
May	1,519	196	121	1	1,640	197
Net Change	⁄19	⁄30	-1	0	⁄18	⁄30

SUMMARY OR ROUTINE ITEMS PROCESSED:

	Commercial		Noncommercial		Total		
	Richland	North Richland	Richland	North Richland	Richland	North Richland	Total
Work Orders	39	24	1	0	40	24	64
Back Charges	5	0	0	0	5	0	5
FY Work Order Total	510	247	51	0	561	247	808
FY Back Charge Total	41	0	15	0	56	0,	56

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Lease Assignment:

   a. L. C. Foisy assigned his Commercial Facility Lease dated March 7, 1952, and sold the business to W. T. Vosper and Leo G. Toore, who will continue the operation of the Recreation Hall.

2. Lease Awards:

   a. Richland Development Company, Inc. covering the construction and operation of a two-story investment building in Block 2, Uptown Business Area.

   b. Hugh S. Cannon and Chalmer D. Joseph covering the construction and operation of a one-story investment building in Block 4, Uptown Business Area.

c. James R. Parcell covering the construction and operation of a building to house an Automotive Service Station and Sales of Car and Home Supplies at Duportail and Hartford Street.

d. Mrs. Diana Langevin covering the construction and operation of a one-story building, to be used for the operation of a gift shop and for subleasing a portion of the building, on the plot between Mickey's Shoe Renewing Shop and the Tri-City Herald Building in the Downtown Business Area.

e. Dr. Earl W. Moore covering the construction and operation of a one-story building to be used for the operation of a veterinary hospital on a one-acre plot west of Riverside Stables.

f. V. O. McVicker covering the construction and operation of a one-story investment building on Lee Boulevard in the Downtown Business Area.

g. W. D. Gray covering the operation of a government-owned building located at 710 The Parkway in the Downtown Business Area.

h. Henry W. Weber covering the construction and operation of a transfer and storage facility in the Heavy Industrial Area.

B. Noncommercial:

1. Leases:

a. Southside United Protestant Church - a ground lease covering the construction, operation and maintenance of a church.

GENERAL:

A. Commercial:

1. Richland Development Company, Inc. started construction on its building in Block 2, Uptown Business District.

2. KALE terminated its sublease with Young World, Inc. 232 Williams.

3. Shawn's Millinery Supply opened for business in Richland Investment Company building at 1337-D George Washington Way.

4. Grace Bacon started construction on her building in the Light Industrial Area.

5. Authority was granted Richland Gas Company to lease two propane storage tanks from Anchor Petroleum Company of Tulsa, Oklahoma.

6. Zinn's Photo Studio opened for business in Cannon-Joseph #1 Building.

7. Cannon and Joseph started construction on their building in Block 4, Uptown Business District.

8. Singer Sewing Machine Company opened for business in Automatic Laundry Company Building, 1380 Jadwin Avenue.

9. Ballard Storage and Transfer Co. opened for business in Richland Thrifty Drug, Inc. Warehouse Building on Wellsian Way.

1204194

B. Noncommercial:

1. Three pasture permits were issued.

COMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of commercial enterprises:

Richland	North Richland
Drive-in Restaurant	None

1204195

9611021

SUMMARY OF OCCUPANCY AND EXPANSION STATUS

A. COMMERCIAL	APRIL			MAY		
	Richland	Richland	Total	Richland	Richland	Total
1. Number of Government-Owned Buildings	36	8	44	36	8	44
a. Number of Prime Lessee Businesses	39	9	48	39	9	48
b. Number of Sublessee Businesses	18	0	18	18	0	18
c. Total Businesses in Government-Owned Bldg.	57	9	66	57	9	66
2. Doctors and Dentists in Private Practice	27	0	27	27	0	27
3. Number of Privately-Owned Buildings	50	7	57	50	7	57
a. Number of Prime Lessee Businesses	40	6	46	39	6	45
b. Number of Businesses operated by Sublessees	69	2	71	72	2	74
c. Total Businesses in Privately-Owned Bldg.	109	8	117	111	8	119
4. Privately-Owned Buildings Under Construction	8	0	8	11	0	11
5. Total Number of Businesses in Operation	166	17	183	168	17	185
B. NONCOMMERCIAL						
1. Government-Owned Buildings						
a. Churches	4			4		
b. Clubs and Organizations	8			8		
c. Government Agencies	3			3		
Total	15			15		
2. Privately-Owned Buildings						
a. Completed and in use	10	1	11	10	1	11
b. Under Construction	6		6	6		6
Total	16	1	17	16	1	17
3. Pasture Land Permits	90		90	93		93

RECEIVED ... Richland Operations Office ... Richland, Wash.